



# Yirrell Beach

## Updated Beach Management Plan



**Submitted to:**

Massachusetts Department of Environmental Protection Northeast Regional Office  
150 Presidential Way  
Woburn, MA 01801

**Submitted by:**

Town of Winthrop  
Winthrop Town Hall  
1 Metcalf Square  
Winthrop, MA 02152



**Prepared by:**

Epsilon Associates, Inc.  
3 Mill & Main Place, Suite 250  
Maynard, Massachusetts 01754



September 24, 2024

# TABLE OF CONTENTS

---

<b>1.0</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	Yirrell Beach Description	1
1.2	Goals of the Interim Yirrell Beach Management Plan	2
1.3	Goals of Yirrell Beach Management Plan	2
<b>2.0</b>	<b>ENVIRONMENTAL REGULATIONS</b>	<b>3</b>
2.1	Mass Wetlands Protection Act	3
2.1.1	Coastal Beach	4
2.1.2	Coastal Dune	7
2.1.3	Barrier Beach	11
2.1.4	Land Subject to Coastal Storm Flowage	12
2.1.5	State-Listed Species	12
2.2	Section 401 of the Clean Water Act (Mass. Water Quality Certification)	13
2.3	Massachusetts Public Waterfront Act (also referred to as the Waterways Licensing Program) Environmental Policy Act	14
2.4	Massachusetts Endangered Species Act	14
2.5	Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbor	14
<b>3.0</b>	<b>BEACH USE AND MANAGEMENT ACTIVITIES</b>	<b>15</b>
3.1	Recreation Beach Management	15
3.1.1	Beach Raking	15
3.1.2	Recreational Beach Maintenance	16
3.1.3	Seawall Maintenance	17
3.1.4	Storm and Emergency Maintenance	17
3.1.5	Beach Management and Regulatory Review	18
3.1.6	Compliance with Performance standards	18
3.2	Shorebird Habitat Management	20
3.2.1	Monitoring and Management Techniques	21
3.2.2	Special Projects	23
3.2.3	Beach and Dune Functions	25
3.2.4	Compliance with Performance standards	26
3.3	Augment Storm Damage Prevention and Flood Control Functions	28
3.3.1	Compliance with Performance standards	29

## LIST OF ATTACHMENTS

---

### Attachment A Figures

- Figure 1. USGS Locus Map
- Figure 2. Aerial Locus Map
- Figure 3. Shoreline Change Map – Long Term
- Figure 4. Shoreline Change Map – Short Term
- Figure 5. MassGIS Coastal Wetland Resource Area
- Figure 6. FEMA Flood Zones
- Figure 7. Coastal Beach and Coastal Dune Boundaries
- Figure 8. NHESP Rare Species Habitat
- Sheet 1. Bathing Beach Management
- Sheet 2. Sacrificial Dunes

### Attachment B NHESP Fact Sheets

- Piping Plover
- Least Terns

### Attachment C NHESP Correspondence

## LIST OF TABLES

---

Table 1.	Schedule of Typical Bathing Beach Management Activities	16
Table 2.	Typical Schedule of Shorebird Management Activities	22
Table 3.	Non-Native and Invasive Plants Observed on Yirrell Beach	24

## Updated Beach Management Plan

---

---

## 1.0 INTRODUCTION

---

### 1.1 Yirrell Beach Description

Yirrell Beach is an easterly facing beach in the southern portion of Winthrop generally extending southward from Cottage Hill to the corporate boundary between Winthrop and Boston (Deer Island), see Figure 1 – USGS Locus Map. The managed portion of Yirrell Beach is approximately 3,660 feet long, and the area covered by this management plan extends from the seawall along Shirley Street seaward to mean high water. See Figure 1 and Figure 2 – Aerial Locus Map.

Review of the Massachusetts Coastal Zone Management (“CZM”) Shoreline Change Project indicates that Yirrell Beach is a stable to accretional beach. The short-term shoreline change rates (1970 – 2018) for the managed beach show no statistical change of the shoreline over this 48 years period; while the long-term change rates (1840’s – 2018) indicate the northerly half of the managed beach is stable and the southerly half is accretional over the approximately 175 year period. See Figures 3 and 4 – Shoreline Change Maps.

The tidal rage at Yirrell Beach is 9.49 feet (mean low water is elevation -5.16 feet North American Vertical Datum of 1988 (“NAVD88”) and the mean high water is elevation +4.33 feet NAVD88).<sup>1</sup> Ocean currents deposit sediments southward along the coastline ranging from fine sand to cobble during storms. In winter, while Nor’Easters can be severe storms, those events are rare. Point Shirley experiences prevailing winds from the north and west in the winter months which transports sand southward along the beach. During the summer month winds are primarily southwesterly and southeasterly but generally weak. Summer winds blow sand toward the water, water currents then carry those sediments southward. Sand and cobble have built up significantly at both ends of the beach, the north end has more rock than the south end. The area with the lowest beach profile is found between the handicap entrance and Bay View Avenue.

Yirrell Beach provides shorebird habitat for Piping Plovers (*Charadrius melodus*) and Least Tern (*Sternula antillarum*) species listed by the state as Threatened and Special Concern, respectively. See the species fact sheets in Attachment B. Although nesting can occur anywhere on the beach, historic nesting sites are identified in the northerly and southerly portions of the beach. Yerrill Beach has historically hosted two to three pairs of Piping Plovers. Once present and nests established birds utilize the entire beach for foraging. For this reason, the Town of Winthrop employs a Qualified Shorebird Monitor (“Monitor”) to monitor and manage activities on the beach to protect shorebirds and their habitat.

---

<sup>1</sup> Boston Harbor NOAA Tide Station No. 8443970

## **1.2 Goals of the Interim Yirrell Beach Management Plan**

The goals for this document are to address the Administrative Consent Order and to allow the Town of Winthrop to manage the beach to:

1. maintain public access for swimming and recreation,
2. maintain, promote and protect shorebird nesting habitat, and
3. maintain the beach functions of storm damage prevention and flood control because it fronts the only transportation route to the Deer Island Wastewater Treatment Facility.

Yirrell Beach fronts Shirley Street and Tafts Avenue, the only transportation route to Deer Island. Deer Island is home to the Massachusetts Water Resource Authority (“MWRA”) Deer Island Wastewater Treatment Facility which is the sewage treatment facility that treats on average 380 million gallons of sewage per day (peak capacity is 1.2 billion gallons per day) for 43 cities and towns in the MWRA service area. Thus, managing the Yirrell Beach to control winter flooding is critical to always maintaining this traffic corridor to Deer Island so that the facility can be properly operated and maintained even during storm events. Thus, managing Yirrell Beach is an overriding public interest to protect the water quality of Boston Harbor and Massachusetts Bay.

## **1.3 Goals of Yirrell Beach Management Plan**

The goals of the Yirrell Beach Management Plan are to:

- ◆ Serve as a reference document for Town officials for managing Yerrill Beach;
- ◆ Provide a management program that is consistent with federal, state, and local laws and regulations for the use of the beach;
- ◆ Provide a narrative, maps and photos that describe and illustrate this Town-managed beach;
- ◆ Describe the Yirrell Beach use and maintenance program, including the required year-to- year program as well as the provisions for storm and emergency maintenance actions;
- ◆ Describe the Town’s program of resource management and protection for the beach, including a description of each wetland resource area, its functions, critical characteristics, performance standards and activities’ conformance with performance standards;
- ◆ Serve as a regulatory document for review by the Massachusetts Department of Environmental Protection (“DEP”) and the Winthrop Conservation Commission (“WCC”) for managing wetland resource areas protected by the state Wetlands Protection Act, and specifically to balance the protected interests of (a) storm damage prevention, (b) flood control, and (c) wildlife habitat – shorebird nesting habitat; and
- ◆ Provide management guidelines that are flexible enough to be adapted, refined, and implemented by the Town’s beach management staff.

## 2.0 ENVIRONMENTAL REGULATIONS

---

A variety of local, state and federal statutes and regulations regulate activities in coastal resource areas. Following are the most significant environmental statutes and regulations that apply to activities at Yirrell Beach in the Town of Winthrop, the office that administer the statutes and regulations:

- ◆ Massachusetts Wetlands Protection Act (M.G.L c. 131; s. 40) – Winthrop Conservation Commission and Massachusetts Department of Environmental Protection (“MassDEP”)
- ◆ Federal Clean Water Act Section 401) – MassDEP
- ◆ Public Waterfront Act (M.G.L. C. 91) – MassDEP
- ◆ Massachusetts Endangered Species Act (“MESA”) (MGL c.131A) - MA Division of Fisheries and Wildlife, Natural Heritage & Endangered Species Program (“NHESP”)
- ◆ Federal Clean Water Act Section 404 – U. S. Army Corps of Engineers
- ◆ Rivers and Harbor Act Section 10 – U.S. Army Corps of Engineers

### 2.1 Mass Wetlands Protection Act

The Massachusetts Wetlands Protection Act (M.G.L. c. 131; s. 40) and Regulations (310 CMR 10.00) were established to protect wetland resource areas because of the valuable functions (interests) wetlands provide which are: protection of public and private water supply; protection of groundwater supply; flood control; storm damage prevention; prevention of pollution; protection of land containing shellfish; protection of fisheries; and protection of wildlife habitat. Authorization is required from the municipal Conservation Commission for any work in and adjacent to protected wetland resource areas. This section focuses on the requirements of the Massachusetts Wetlands Protection Act (“WPA”) and Coastal Wetland Regulations that govern activities and protection for the beaches and the associated resources areas. This section is organized by each wetland resource area (definition, function, critical characteristics and performance standards) present at Yirrell Beach. Section 3.0 describes the activities in this Updated Beach Management Plan in each resource area and a discussion of how these activities comply with the performance standards for each resource area.

The wetland resource areas present in the beach management area include:

- ◆ Coastal Beach,
- ◆ Coastal Dune,
- ◆ Barrier Beach, and
- ◆ Land Subject to Costal Storm Flowage (“LSCSF”).

The general boundaries of the coastal resources are presented on Figure 5 - MassGIS Coastal Wetland Resource Areas; while the limit of LSCSF (i.e., the 100-year flood plain) is depicted on Figure 6 - FEMA Flood Zones. These are reviewed below because the goal of this management plan is to identify a suite of beach management procedures that balance the interests of the WPA significant to these resource areas, which are storm damage prevention, flood control and wildlife habitat (specifically shore bird nesting

habitat), as well as maintaining recreational uses of this public beach. The descriptions are based on current conditions within the Beach Management Plan planning area, i.e., seaward of the seawall. It is acknowledged that past alterations to shoreline, e.g., constructing the seawall, road, infrastructure and homes, as well as past management activities, have altered the natural conditions and characteristics of the dune on this barrier beach. The beach and dune boundaries as well as sediment composition and distribution is expected to change over time –season-to-season and year-to-year– because this is a dynamic landform and subject to storm action, currents and littoral transport.

### **2.1.1 Coastal Beach**

Coastal beach is defined as, “... *unconsolidated sediment subject to wave, tidal and coastal storm action which forms the gently sloping shore of a body of salt water and includes tidal flats. Coastal beaches extend from the mean low water line landward to the dune line, coastal bankline or the seaward edge of existing human-made structures, when these structures replace one of the above lines, whichever is closest to the ocean.*” (310 CMR 10.27)

Coastal beaches, which are defined to include tidal flats, are significant to storm damage prevention, flood control and the protection of wildlife habitat. Where tidal flats are present, they are likely to be significant to the protection of marine fisheries and where there are shellfish, to land containing shellfish. “Significant” meaning that they play a vital role in the protection of the public interests of the WPA.

The characteristics of a coastal beach that are critical to storm damage prevention and flood control are:

- ◆ The volume and form of the beach; and
- ◆ The ability to respond to wave action.

The characteristics when coastal beaches are significant to the protection of marine fisheries or wildlife habitat

- ◆ Distribution of sediment grain size ;
- ◆ Water circulation ;
- ◆ Water Quality ; and
- ◆ Relief and elevation.

When a coastal beach is significant to storm damage prevention, flood control, marine fisheries or the protection of wildlife habitat, the following performance standards apply (310 CMR 10.27(3-5))

- ◆ Any project on a coastal beach, (with a few exceptions as described in the WPA Regulations) must not have an adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent or downdrift coastal beach.
- ◆ Any groin, jetty, solid pier, or other such solid fill structure which will interfere with littoral drift, in addition to complying with 310 CMR 10.27(3), shall be constructed as follows:

- It shall be the minimum length and height demonstrated to be necessary to maintain beach form and volume. In evaluating necessity, coastal engineering, physical oceanographic and/or coastal geologic information shall be considered.
- Immediately after construction any groin shall be filled to entrapment capacity in height and length with sediment of grain size compatible with that of the adjacent beach.
- Jetties trapping littoral drift material shall contain a sand by-pass system to transfer sediments to the downdrift side of the inlet or shall be periodically redredged to provide beach nourishment to ensure that downdrift or adjacent beaches are not starved of sediments.
- Beach nourishment with clean sediment of a grain size compatible with that on the existing beach may be permitted.
- ◆ When a tidal flat is determined to be significant to marine fisheries or wildlife habitat, the following performance standards shall apply 310 CMR 10.27 (6-7)
  - Water-dependent projects must be designed and constructed, using best available measures, to minimize adverse effects.
  - Non-water-dependent, have no adverse effects, on marine fisheries and wildlife habitat caused by: alterations in water circulation; alterations in the distribution of sediment grain size; and changes in water quality, including, but not limited to, other than natural fluctuations in the levels of dissolved oxygen, temperature or turbidity, or the addition of pollutants.
  - No project may be permitted which will have any adverse effect on specified habitat sites or rare vertebrate or invertebrate species.

Coastal Beach extends landward from the mean low water line (el. -5.16 feet NAVD88) to the seaward edge of Coastal Dune. The limits of Coastal Beach and Coastal Dune are depicted on Figure 7 - Coastal Beach and Coastal Dune Boundaries. The boundaries are defined by el. -5.16 feet NAVD88 landward to the seaward of Coastal Dune. The highest wrack line is a good visual indicator of the Coastal Beach / Coastal Dune margin at Yirrell Beach. The seawall is the planning boundary for this Beach Management Plan, and the seawall height (reveal) in May 2024 ranged from 4- to 5.5-feet between Otis Street and the most northern access, depending on location.

The beach sediment is comprised of very coarse sand, with gravel and cobbles. Along much of the beach there is gravel and small cobble berm that ranges from 10- to 20-feet wide. See representative photos of the beach below (Photos 1 through 3).



**Photo 1.** View of Yirrell Beach facing north at the wheelchair accessible ramp. The regulated Coastal Dune is in the foreground to the left and the cobble dune is in the upper-right of this photo.



**Photo 2.** View facing south along Yirrell Beach. Sediment is comprised of very coarse sand with scattered cobbles. The highest wrack line is a field indicator of the Coastal Beach limit.



**Photo 3.** View facing south of Yirrell Beach facing south. Note cobble beach berm in the intertidal zone.

### **2.1.2 Coastal Dune**

Coastal Dunes are defined as, “...any natural hill, mound or ridge of sediment landward of a coastal beach deposited by wind action or storm overwash. Coastal dune also means sediment deposited by artificial means and serving the purpose of storm damage prevention or flood control.” (310 CMR 10.28)

Coastal dunes are significant to the public interests of storm damage prevention and flood control, and the protection of wildlife habitat. On barrier beaches all coastal dunes are deemed significant to these public interests.

The characteristics of coastal dunes that are critical to the protection of storm damage prevention, flood control and wildlife habitat are;

- ◆ ability of the dune to erode in response to coastal beach conditions;
- ◆ dune volume and form;
- ◆ vegetative cover;
- ◆ ability of the dune to move landward or laterally; or
- ◆ ability of the dune to continue serving as bird nesting habitat.

When a coastal dune is determined to be significant to storm damage prevention, flood control, marine fisheries or the protection of wildlife habitat, the following performance standards apply (310 CMR 10.28 (3-6).)

- ◆ Any alteration of, or structure on, a coastal dune or within 100 feet of a coastal dune shall not have an adverse effect on the coastal dune by:
  - affecting the ability of waves to remove sand from the dune;
  - disturbing the vegetative cover so as to destabilize the dune;
  - causing any modification of the dune form that would increase the potential for storm or flood damage;
  - interfering with the landward or lateral movement of the dune;
  - causing removal of sand from the dune artificially; or
  - interfering with mapped or otherwise identified bird nesting habitat.
  
- ◆ When a building already exists upon a coastal dune, a project accessory to the existing building may be permitted, provided that such work, using the best commercially available measures, minimizes the adverse effect on the coastal dune caused by the impacts listed above.
  
- ◆ The following projects may be permitted, provided that have no adverse effects on the coastal dune caused by the impacts listed above
  - pedestrian walkways, designed to minimize the disturbance to the vegetative cover and traditional bird nesting habitat;
  - fencing and other devices designed to increase dune development; and
  - plantings compatible with the natural vegetative cover.
  
- ◆ No project may be permitted which will have any adverse effect on specified habitat.

Coastal Dunes were delineated in the field and the boundaries are depicted on Figure 7 - Coastal Beach and Coastal Dune Boundaries. The primary frontal dune (“PFD”) on Yirrell Beach from the seawall seaward to the landward edge of Coastal Beach is considered to be PFD based on the clause in the definition that reads “... *the coastal dune closest to the coastal beach, also known as the Primary Frontal Dune* ...”.

The northerly dune area is primarily a cobble dune with two cobble ridges observed in May 2024. These ridges are in the form and general locations of ridges defined by the 10- foot contour as depicted on Figure 7. The more landward portion of the northerly dune is coarse sand and has inclusions of vegetation - American beachgrass (*Ammophila breviligulata*), beach pea (*Lathyrus japonicus*), evening primrose (*Oenothera biennis*), seaside goldenrod (*Solidago sempervirens*) and sand dropseed (*Sporobolus cryptandrus*), with occasional woody plants including tree-of-heaven (*Ailanthus altissima*) and staghorn sumac (*Rhus typhina*). Non-native species north of the areas not managed by the Town and that are rarely reached by storms include mossy stonecrop, soapwort, chicory, mug wort, quack grass, multi-flora rose, and even knotweed.

The southerly dune is primarily a coarse sandy dune with cobble and gravel inclusions. It supports a more expensive vegetated dune which includes American beachgrass, beach pea, seaside goldenrod, sand dropseed, sea rocket and Russian thistle. Desire paths are present through the dune as evidenced in Figure 2 and the access way through the dune at Wyman Street makes a distinct break between the dune segments in the southerly portion of Yirrell Beach. See Figure 7. Invasive species become more prevalent south of Wyman Street along with trees and shrubs self-colonizing in that area.

The combination of adjacent seed sources, lack of tidal action, and years of accretion may promote faster ecological succession away from a typical coastal dune plant community and towards a shrubland community in both northerly and southerly dune areas without ongoing management for shorebird habitat.

The central dune is primarily a coarse sandy dune with cobble and gravel inclusions.

Photos of the Coastal Dune are presented below in Photos 4 – 6.



**Photo 4.** View facing south of the northerly cobble berm at Yirrell Beach.



**Photo 5.** *View of the sand dune landward of the cobble dune in the northerly portion of Yirrell Beach. facing south of the northerly cobble berm at Yirrell Beach.*



**Photo 6.** *View of the southerly dunes facing west at the Wyman Street beach entrance.*

### **2.1.3 Barrier Beach**

Barrier Beaches are defined as, “... a narrow low-lying strip of land generally consisting of coastal beaches and coastal dunes extending roughly parallel to the trend of the coast. It is separated from the mainland by a narrow body of fresh, brackish or saline water or a marsh system. A barrier beach may be joined to the mainland at one or both ends.” (310 CMR 10.29)

Barrier Beaches, and their coastal dunes are significant to the public interests of storm damage prevention and flood control and protection of marine fisheries, wildlife habitat and, where shellfish are present, land containing shellfish.

Since barrier beaches are composed of coastal beach and coastal dunes, the characteristics of a barrier beach that are critical to the protection of the public interests listed above are described below under the coastal beach and coastal dune subsections/

When a barrier beach is determined to be significant to storm damage prevention, flood control, marine fisheries or protection of wildlife habitat, the following performance standards apply (310 CMR 10.29 (3-4))

- ◆ All performance standards for coastal beach and coastal dune shall apply.
- ◆ No project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species.

This Barrier Beach is mapped as Barrier Beach unit Wn-2. Yirrell Beach and the spit of land forming the beach is a fully developed urbanized barrier beach, supporting buildings, roads, plus underground and overhead utilities. Shirley Street provides the only land transportation route to the MWRA Deer Island Wastewater Treatment facility. To protect development in this portion of Winthrop the seawall was constructed along Yirrell Beach in the 1950’s. The presence of the seawall and man-made structures (e.g., roads and buildings) interrupts the natural sediment transport mechanisms of a barrier beach. The seawall in particular prevents the natural migration of the dune landward and interferes with natural littoral processes observed in natural barrier beach systems. The seawall is identified as a factor contributing to the altered sediment movements along Yirrell Beach. Fitzgerald<sup>2</sup> noted that along the Winthrop coast there was a trend of storm generated sediment transport leading to onshore gravel movement and offshore sand movement. Also, during severe storms, such as Nor’easters and other intense storms, sediment is and can be washed over the seawall. Although Dr. Fitzgerald’s observations are some 40-years old his conclusion remains valid, based on the present condition of Yirrell Beach being primarily a very coarse sand beach with extensive deposits of gravel and cobble.

---

<sup>2</sup> Fitzgerald, Duncan M. 1984. Coastal Geology of Winthrop, MA. 24 pages.  
([https://scholars.unh.edu/cgi/viewcontent.cgi?article=1341&context=neigc\\_trips](https://scholars.unh.edu/cgi/viewcontent.cgi?article=1341&context=neigc_trips) accessed 25 MAY 2024)

#### **2.1.4 Land Subject to Coastal Storm Flowage**

Land Subject to Coastal Storm Flowage (“LSCSF”) is defined as, “... *land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater.*” (310 CMR 10.04)

There are presently no performance standards established for LSCSF, however this resource is generally presumed significant to storm damage prevention and flood control.

LSCSF is an “overlay” resource, i.e., it overlays regulated resource areas as well as non-jurisdictional landforms. At Yirrell Beach LSCSF overlays Coastal Beach and Coastal Dune, and extends across the developed portion of the peninsula.

#### **2.1.5 State-Listed Species**

Yirrell Beach is mapped as both Priority Habitat for State-Listed Rare Species and Estimated Habitat of Rare Wildlife, see Figure 8. This is not a wetland resource area; however the protection of wildlife habitat is an interest of the WPA, and the performance standards for Coastal Beach and Coastal Dune require no adverse effect to protected habitats.



**Photo 7.** View facing north of the most southerly nesting area in the gravelly dune area.

Yirrell Beach is identified as providing habitat for Piping Plovers and Least Tern. Piping plovers typically prefer to establish nests on sandy beaches and dunes free of vegetation. Piping Plovers are fairly adaptable and utilize mixed sand and cobble substrate. Pure cobble substrate, however, is hard for the chicks to traverse, but they can traverse surprisingly rough ground. With active management Yirrell Beach

provides adequate nesting habitat, and with regular management the beach has historically hosted two to three pairs of Piping Plovers with the historic nesting sites found in both the northerly and southerly dune areas. With no beach management the quality of nesting habitat is expected to decline. In the spring of 2024 Plovers established nests in the southerly nesting area initially. See Photos 7 and 8 below. Since May 20, 2024 one pair moved north, establishing a nest in the northerly dune and started to incubate eggs on or about May 28<sup>th</sup>.

Vegetation such as soapwort and grasses have become established along the seawall near the northerly nesting area and can become dense growing to a height of 2- to 3-feet. Trash, including food waste is thrown or accumulates in this vegetation attracting skunks, raccoons, cats and rats. These animals also prey on the Piping Plovers. Thus, vegetation and trash management is needed to remove, or minimize, predator habitat near nesting sites.



**Photo 8.** View facing south of the southerly nesting area in coarse sand.

## 2.2 Section 401 of the Clean Water Act (Mass. Water Quality Certification)

Section 401 of the Clean Water Act requires that states issue a Certification that any proposed filling of waterways or wetlands will comply with the state's Surface Water Quality Standards. The extent of jurisdiction is the annual high tide line in tidal waters and ordinary high-water line in non-tidal waters. The need for a Water Quality Certification (“WQC”) is triggered when a federal permit is needed for filling wetlands or waterways.

### **2.3 Massachusetts Public Waterfront Act (also referred to as the Waterways Licensing Program) Environmental Policy Act**

The Waterways Licensing Program was formally established in 1866 by the passage of M.G.L. Chapter 91. The origins of the law can be traced back to the Colonial Ordinances of 1641-1647 which granted to the public, rights in tidelands and great ponds. Private ownership of property was extended (and still does extend) to the mean low water mark. The Colonial Ordinances allowed public access to tidelands (land between the mean high water mark and the mean low water mark) for the purposes of fishing, fowling and navigation (public trust rights). The Commonwealth's jurisdiction in accordance with Chapter 91 extends to the mean high water mark for tidal water bodies and the ordinary high water mark for non-tidal water bodies. In 1979, the Massachusetts Supreme Judicial Court extended the public trust rights to include "filled tidelands". Therefore, the jurisdiction of the Chapter 91 Waterways Licensing Program can include previously filled areas to the historic high water mark dating back to the 1640's. A Chapter 91 License is required for any work conducted at or below the mean high water mark, or for a change in use of filled tidelands.

### **2.4 Massachusetts Endangered Species Act**

The Massachusetts Endangered Species Act (M.G.L. c.131A) and Regulations (321 CMR 10.00) contain prohibitions against "taking" of a state-listed species. MESA review is required for projects within Priority Habitat for State-Protected Species. The review guidelines explain which projects require MESA filings and also include specific exemptions for certain activities. All projects within Priority Habitat for State-Protected Species should consult NHESP staff to secure review and determination of take, or conditions which identify the means to proceed while avoiding a Take of state-listed species.

In developing beach management activities, the Town has coordinated with the NHESP to identify techniques, timing and extent of management activities to avoid the Take of Plovers, and specifically to protect and maintain Plover nesting on Yirrell Beach. See Attachment D.

### **2.5 Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbor**

Work in wetlands and waterways is regulated by the U.S. Army Corps of Engineers ("USACE") pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Section 404 regulates the discharge of dredge or fill material in the waters of the U.S., which includes waters up to the annual high tie line in tidal waters, ordinary high water line in non-tidal waters and to adjacent wetlands. Section 10 of the Rivers and harbors Act regulates the construction of structures and placement of fill up to mean high water in tidal waters and the ordinary high water line in non-tidal waters that support interstate commerce.

## 3.0 BEACH USE AND MANAGEMENT ACTIVITIES

---

### 3.1 Recreation Beach Management

The Town plans to continue managing and maintaining the beach to promote traditional recreational uses of the beach which include swimming, walking, birdwatching and para-sailing to name a few.

#### 3.1.1 *Beach Raking*

Bathing beach management has involved beach raking at different intervals: (a) weekly (typically weekly but sometimes less frequently) during the swimming season (May – August)<sup>3</sup> along an approximately 1,100 foot long segment from the wheelchair accessible ramp in the north to Bay View Avenue in the south, and (b) as needed during the summer season for the 3,660 foot long Yirrell Beach.

Going forward weekly beach raking will occur on Coastal Beach only. Because wrack and debris is carried and deposited on the beach by wave action, and wave runoff during high tides, debris typically is deposited above the high tide line. Beach raking will be limited to collecting debris on the Coastal Beach only and will occur along the wrack line, the highest wrack line is a field indicator of the landward limit of Coastal Beach. Weekly beach raking to remove the wrack line on Coastal Beach will typically occur on an approximately 1.2 acre area above the high tide line. Raking as needed, after fledging, will occur on Coastal Beach along the wrack line. This is an approximately 1.4 acre area. See Sheet 1 for the maximum extent of Bathing Beach Management.

Beach raking is performed using a tractor pulling the beach rake to collect wrack and debris in the supratidal zone (i.e., above the high tide line). The raked debris is emptied into the bucket of a wheeled loader, and the loader transports the debris to a dump truck located at the handicap entrance. During shorebird nesting season, before the chicks fledge, the dump truck can be stationed at the Wyman Street beach entrance, if necessary. DPW uses the handicap entrance unless chicks are present which requires the use of Wyman Street. Collected seaweed and wrack are transported to the DPW yard and deposited in the street sweeping pile.

To avoid altering active shoreline nesting and foraging activities during the nesting season, wrack and seaweed are typically left in place for 200 feet around nest enclosures on each side of enclosures to provide foraging habitat for birds.

The Coastal Dunes are present in the far north and far south portions of Yirrell Beach and fronting the seawall. Beach raking for wrack and debris removal will not be performed in Coastal Dune. If needed to protect public safety, debris and trash will be removed from Coastal Dunes by hand.

---

<sup>3</sup> Typically before Memorial Day through the end of August

Table 1. Schedule of Typical Bathing Beach Management Activities below, presents a summary of the typical annual management actions by the Town. Note, all work on the beach during the shoreline bird nesting season, April 1 through August 31, is overseen by or conducted by the Town’s Monitor.

**Table 1. Schedule of Typical Bathing Beach Management Activities**

Timing	Maintenance Activities	Management / Mitigation
April	Front end loader may access beach to remove large storm debris.	Symbolic fencing installed around traditional shorebird nesting areas before April 1. Operators instructed to enter perpendicular to water's edge and drive below the wrack line to destination. Operators are instructed to stay at least 200 feet from symbolic fencing, except as necessary on the water side of the lines.
May	Routine beach maintenance depends partly on the weather; typically raking begins just before Memorial Day.	Pre-hatch: Monitor assigned to the beach crew to ensure compliance. Monitor can operate beach rake thus improving efficiency while ensuring that machinery does not approach within 200 feet of fencing without an escort.
May-Sept (If chicks present)	Routine beach maintenance continues, usually weekly. If there is an exceptionally heavy wrack cast, raking may take more than one morning. Equipment / vehicles may also access beach to remove storm debris, install lifeguard stands, etc.	Post-hatch: Monitor always remains on the ground between the chicks and vehicular/equipment traffic. In some cases, if there are multiple sets of chicks, located at each end of the beach, the beach is split. Once equipment is escorted by the Monitor, passes the set of chicks closest to Wyman St, flagging is put up northwards of Bay View; operators instructed to stay at the north end of the beach until the monitor is available to escort them out. In those cases, major focus is on the more heavily used north end of the beach. If the chicks at the south end are foraging. Typically, a co-worker is assigned to remain mid-beach to keep an eye on the chicks.

**3.1.2 Recreational Beach Maintenance**

The Town conducts several activities on the beaches under this Beach Management Plan to maintain them for recreational beach use. The primary public access is the ADA accessible ramp in the northern end of the beach. The DPW routinely maintains this accessway and performs maintenance activities which includes the following:

- ◆ Debris and trash removal;
- ◆ Recyclables collection and removal;
- ◆ Cleaning and clearing walkway, stairs, and accessways using either a rubber-tired backhoe or front-end loader;
- ◆ Sanitation and disposal of portable toilets and pet waste;

- ◆ Covered trashcans are maintained at the public access, DPW empties the barrels daily during the summer season and regularly in the off season; and
- ◆ Installation of signage to describe shorebird management, and public access and beach rules.

### **3.1.3 Seawall Maintenance**

A concrete seawall is present at the back of the beach and maintenance thereof is included in this Beach Management Plan. The Town is responsible for maintaining the seawall to ensure its structural integrity. Unless an emergency repair is needed, scheduled maintenance would be performed outside the time of year restriction for the state-listed shorebirds that utilize Yirrell beach for nesting. These maintenance activities are performed on an as-needed basis, and often depend on coastal storm frequency and intensity and they include:

- ◆ Concrete patching. Access to the seaward facing portion of the seawall may require temporarily pulling sand away from the seawall face to expose the full extent of the damaged wall to allow proper patching / repair. After work is completed, the sand will be re-graded to establish a smooth sand surface extending from the seawall.

No seawall maintenance or repair is presently proposed. The above activities are identified and described in this Beach Management Plan to include these as identified beach management activities in this Beach Management Plan. The Town will seek standalone authorization (e.g., an Order of Conditions or Determination of Applicability) pursuant to the Wetlands Protection Act for seawall maintenance when needed.

- ◆ Grading or relocation of sand at the ADA accessible ramp. Sand may accumulate at the beach accessway and periodically may need to be removed to permit safe pedestrian access to the beach. Sand will be removed from the accessway and from along the seawall for a length of 10-feet to the north and south of this access to provide a smooth and even transition for pedestrian passage from the accessway to the beach. Mobi mats will be installed from the entrance to the water line to facilitate pedestrian access.

### **3.1.4 Storm and Emergency Maintenance**

Given the exposure to ocean wave conditions, coastal storms can cause severe damage to the beach as well as to public beach access points and use. The Town must have the ability to immediately respond to storm or other emergencies on Town beaches to make necessary repairs, remove threats to the public safety or to repair damage before more serious damage or failure may occur. Coastal storms can also carry debris onto the beach that must be cleaned up quickly. Some of the debris that washes up consists of lobster traps, tree limbs, dead sea animals and occasionally boats. Large pieces of wood or other floating debris can inflict significant damage to the beach and nearby structures as they are propelled by waves and currents. The DEP has approved these emergency repair and debris removal measures in the past.

### **3.1.5 Beach Management and Regulatory Review**

As described above, the Recreational Beach Management activities on Yirrel Beach are proposed on Coastal Beach and Coastal Dune, which is presumed significant to storm damage prevention, flood control, and shorebird habitat. Portions of Yirrell Beach on which the management activities described above (i.e. beach raking, recreational beach maintenance, seawall maintenance, and storm and emergency maintenance) will occur in the supratidal zone (above mean and annual high tide lines) and thus only need to comply with the WPA Regulations because the management activities are landward the jurisdictional limits for Ch. 91, Section 401 and 404 of the Clean Water Act, and Section 10 of the Rivers and Harbors Act.

Yirrell Beach is mapped habitat for state-listed species, and MESA review for certain management activities described in this plan were reviewed by NHESP staff through the filing of a Joint WPA and MESA Notice of Intent. NHESP provided specific conditions to be included in the Order of Conditions to avoid the Take of state listed shore birds. Those conditions are included in this plan by reference. Additionally, the beach management activities specifically to promote bird nesting habit and bird protection, presented below in Section 3.2, were developed in consultation with NHESP staff.

### **3.1.6 Compliance with Performance standards**

#### **Coastal Beach:**

The performance standards for Coastal Beaches significant to storm damage prevention, flood control or wildlife habitat are presented in 310 CMR 10.27(3) – (6) and (7) which are presented below in italics typeface with the response to each presented in normal typeface.

- (3) Any project on a coastal beach, except any project permitted under 310 CMR 10.30(3)(a), shall not have an adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent or downdrift coastal beach.*

Beach raking is a seasonal activity (i.e., temporary) which is planned to occur in late-May through August to remove wrack and debris from the swimming beach to promote recreational uses of the beach and to remove debris which may cause injury or potential health hazards to beach users. Raking does not affect beach erosion, does not decrease beach volume, nor does it alter beach form.

Storm and emergency maintenance is likewise needed to remove debris and obstacles that may cause injury, harm or pose a health hazard to beach users. Removing these items from the beach will not change the beach form.

- (4) Any groin, jetty, solid pier, or other such solid fill structure which will interfere with littoral drift, in addition to complying with 310 CMR 10.27(3), shall be constructed as follows:*
- (a) It shall be the minimum length and height demonstrated to be necessary to maintain beach form and volume. In evaluating necessity, coastal engineering, physical oceanographic and/or coastal geologic information shall be considered.*

*(b) Immediately after construction any groin shall be filled to entrapment capacity in height and length with sediment of grain size compatible with that of the adjacent beach.*

*(c) Jetties trapping littoral drift material shall contain a sand by-pass system to transfer sediments to the downdrift side of the inlet or shall be periodically redredged to provide beach nourishment to ensure that downdrift or adjacent beaches are not starved of sediments.*

Not applicable. Recreational beach management does not involve constructing a coastal engineering structure.

*(5) Notwithstanding 310 CMR 10.27(3), beach nourishment with clean sediment of a grain size compatible with that on the existing beach may be permitted.*

Beach nourishment, in the form of constructing the sacrificial dune, will be completed with sand of compatible grain size.

*(7) Notwithstanding the provisions of 310 CMR 10.27(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites or rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.*

Beach raking and wrack removal that occurs during the shorebird TOY restriction period is overseen by, or performed by, the Town's Monitor, consistent with NHESP recommended conditions. See correspondence from the NHESP in Attachment D.

## **Coastal Dune**

The performance standards for Coastal Dune presumed significant storm damage prevention, flood control or wildlife habitat are presented in 310 CMR 10.28(3) – (6) which are presented below in italics typeface with the response to each presented in normal typeface.

*(3) Any alteration of, or structure on, a coastal dune or within 100 feet of a coastal dune shall not have an adverse effect on the coastal dune by:*

*(a) affecting the ability of waves to remove sand from the dune;*

*(b) disturbing the vegetative cover so as to destabilize the dune;*

*(c) causing any modification of the dune form that would increase the potential for storm or flood damage;*

*(d) interfering with the landward or lateral movement of the dune;*

*(e) causing removal of sand from the dune artificially; or*

*(f) interfering with mapped or otherwise identified bird nesting habitat.*

Seawall maintenance is generally performed at the furthest landward extent of the dune. Seawall repairs, when needed, may require temporary change to dune grades to expose lower portions of the seawall that requires maintenance. Upon completion of seawall repairs, when needed, the dune will be re-graded to match pre-maintenance conditions and grades. Authorization for

seawall maintenance is not requested through this Beach Management Plan. It is included herein to present a full suite of management activities that may occur on Yirrell Beach. Authorization for any future seawall maintenance will be sought through a standalone permitting process with the Winthrop Conservation Commission pursuant to the Wetlands Protection Act.

- (4) *Notwithstanding the provisions of 310 CMR 10.28(3), when a building already exists upon a coastal dune, a project accessory to the existing building may be permitted, provided that such work, using the best commercially available measures, minimizes the adverse effect on the coastal dune caused by the impacts listed in 310 CMR 10.28(3)(b) through (e). Such an accessory project may include, but is not limited to, a small shed or a small parking area for residences. It shall not include coastal engineering structures.*

Not applicable.

- (5): *The following projects may be permitted, provided that they adhere to the provisions of 310 CMR 10.28(3):*

- (a) *pedestrian walkways, designed to minimize the disturbance to the vegetative cover and traditional bird nesting habitat;*
- (b) *fencing and other devices designed to increase dune development; and*
- (c) *plantings compatible with the natural vegetative cover.*

The entrance maintenance and installation of mobi mats across dune adhere to the provision of 10.28(3).

- (6) *Notwithstanding the provisions of 310 CMR 10.28(3) through (5), no project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.37.*

The recreational management activities were developed in consultation with NHESP and use acceptable practices that balance shorebird habitat and nesting along with storm damage prevention, flood control and public recreation on Yirrell Beach.

### **3.2 Shorebird Habitat Management**

Yirrell Beach is an urban beach used for human recreation and it also provides shorebird nesting habitat. As compared to other beaches in the Commonwealth and as described in the literature, the beach and dunes at Yirrell Beach provide suboptimal nesting habitat. Despite the suboptimal nesting habitat, piping plovers have been known to nest on Yirrell Beach since 2008. Active management of the beach and dunes is required to protect, preserve, and maintain piping plover nesting at Yirrell Beach. The Massachusetts Audubon Society (“Mass Audubon”) oversaw beach monitoring from 2008-2012. The town contracted with the current Monitor (Ms. Susannah Corona) from 2012-2015; and in 2015 Ms. Corona was hired as a DPW employee. Ms. Corona was trained by Mass Audubon coastal waterbird staff and has worked as a

shorebird monitor since 2008 on Revere, Winthrop and Yirrell beaches. She currently monitors and directs or conducts management activities at Yirrell Beach as part of other DPW duties under the supervision of Steve Calla (DPW Director) and Aaron Armitstead (DPW Operations Manager).

Whereas Yirrell Beach, an urban beach, is known to provide shorebird habitat this management activity is proposed specifically to protect and augment the WPA interest of “protection of wildlife habitat” [310 CMR 10.01] and the coastal resources areas of Coastal Dune and Coastal Beach are presumed significant to the protection of wildlife habitat [310 CMR 10.27(1) and 10.28(1)]. Without active management of Yirrell Beach to maintain and preserve suitable substrate conditions for shorebird nesting, it is anticipated that the beach will no longer provide the critical characteristics to support shorebird nesting and this interest (function) will be lost over time. Additionally, the management techniques described herein have been developed in consultation with and have been performed pursuant to conditions prepared by the NHESP specifically to promote continued shorebird nesting on Yerrill Beach. In short, ceasing to manage the beach as historically done will not protect the interest of wildlife habitat and will likely lead to conditions which will diminish the capacity of this urban beach to provide nesting habitat for state-listed shorebirds.

### **3.2.1            *Monitoring and Management Techniques***

#### **Monitoring:**

Observations are made with binoculars, to identify all bird species observed and count by species, and recorded data includes: time, weather, bird behavior, locations where birds observed, tracks, scrapes, nests, eggs, and chicks. Potential and actual hazards as well as significant interactions with beachgoers and dog owners are recorded. Once nesting occurs and eggs observed, the observer predicts hatch and fledge dates. At the end of the season the monitor completes required State forms, enters data into PIPLODES and TERNODES, and is available to answer questions from regulating entities about the season.

#### **Signage:**

Most signage used on Yirrell Beach for shorebird management was inherited from Mass Audubon. Signage originally inherited from Mass Audubon and includes "Keep Out" and "Families Ahead" blue and yellow signs. In 2022 the Town purchased additional “Keep Out blue signage”. Additionally printed, laminated copies of the Town of Winthrop dog ordinance mounted on wood and installed on the beach have been effective in communicating the rules. He Town also has and has installed "Chick Foraging Zone" signs donated by a local sign company years ago. They are attractive and are sometimes stolen. The Town currently does not have any "No Dogs" signs suitable for beach use. These signs are installed annually by the Town under the direction of the Monitor as to location and timing for installation and removal.

Management activities to protect nesting areas are implemented annually. Symbolic fencing installed annually around nesting areas is minimal to prevent pushback from a generally hostile public, but large enough to ensure birds do not leave nests when people walk by. Double-fencing and dog lines help prevent disturbance and with the use of these techniques hatch rates have been high. Due to intensive beach use, and the concern about making nests obvious, enclosures are not regularly entered except to remove hazardous trash or to fix vandalism. In one previous year orange cones and pink flagging were

installed to discourage ATV transit through the nesting area, and it was observed that these markings were also helpful keeping dog walkers, birders, and mountain bikers further away from nesting areas. In some areas where chicks are known to forage and transit far from the enclosure, paths have been created to channel human traffic away from areas frequently used by chicks.

Chicks have been observed to roam widely, thus it has not been possible to adjust fencing to accommodate their travels. Instead, multiple "Families Ahead" signs, inherited from Mass Audubon, are normally installed on the beach along their routes to minimize human interference with chicks' movements.

A summary schedule of the shorebird management activities is presented below in Table 2. Typical Schedule of Shorebird Management Activities.

**Table 2. Typical Schedule of Shorebird Management Activities**

Month	Approximate Duration	Management Activity
March	Fencing: 6 hours. Checks: 1 - 2 hrs./week	Check beach for early arrivals after March 15, 1-2 times per week, pick up trash, fence areas of recent use by April 1. Check supplies of poles, twine, signs and discuss with DPW Director.
April	Checks: 0.5 - 1.5 hours/daily (including weekends & holidays)	Regular beach monitoring and trash pick-up increases, when evidence of returning birds found, beach is checked daily to see if fencing is correctly deployed and to remove food trash and other hazards. Adjust and move fencing as needed, look for tracks, scrapes, and nests. Invasive vegetation removal in or near bird habitat if time allows
May	Checks: 1 hour daily (includes weekends & holidays)	Daily beach monitoring to locate nests, address trash and vandalism, and tweak symbolic fencing if needed. Dog lines and double-fencing installed, checked, and adjusted daily. Chicks may hatch at the end of May (see June)
June	Checks: 1 - 2+ hours daily (includes weekends & holidays)	Chicks typically present. In addition to routine checks for trash/vandalism, chicks and broods are located daily (sometimes difficult due to their mobility). If a chick is missed during the AM check the Monitor returns later. Best time for observations is usually before 8AM and after 4PM, however visits do need to be randomized at times to understand dog and beach use patterns. Also, sometimes it is necessary for Monitor to check broods more than once per day based on bird behavior, beach use and weather. Other activities include looking for new pairs, checking predator activity, making and moving signage, making paths, installing flagging/cones and data entry.
July-September	Fence removal: 6 hrs. Checks: 1 - 2 hrs daily	If all goes well chicks will fledge in July. If not, intensive monitoring continues into August and occasionally into September. Monitor accompanies heavy equipment on the beach if needed to remove debris, until chicks are flying. Fencing remains up if birds are using it, i.e., returning to roost at night.

### 3.2.2 Special Projects

The following is summary of special projects that have taken place to manage the beach to protect and preserve shorebird nesting habitat.

#### **Large Debris Removal:**

Large logs, dock sections, floats, and net piles occasionally wash ashore. If this type of large debris washes ashore during shorebird nesting season (April-Sept) the Monitor accompanies heavy equipment onto the beach to remove the debris in a manner to avoid altering shorebird nesting sites and behavior.

#### **Vegetation Management:**

Vegetation on Yirrell Beach is primarily found in the northerly and southerly dune areas, and its management has been conducted to reduce predator habitat and promote a native plant community. Predators include skunks, raccoons, rats and housecats. Predators at each end of the beach live in the riprap around Deer Island and Watertower Hill, with a large number of tracks observed. Most vegetation management has been done by hand, but occasionally invasive overgrowth or very dense vegetation near historic nesting areas had included vegetative management by back-dragging (also known as back-blading), before or after breeding season. Going forward vegetation management on Yirrell Beach will not include back dragging, and will be performed by hand.

Non-Native and invasive plants observed on Yirrell Beach are listed below in Table 3. This list is based on years of observations by the beach manager and not the result of an exhaustive or systematic scientific survey, and therefore additional species may be present. The goal of vegetation management going forward will be to manage the vegetated areas to minimize predator habitat and manage the vegetated areas to promote a dune community and approximate a Maritime Beach Strand Community<sup>4</sup>. The management will therefore be advanced to promote American beachgrass as well as the other species typically found in this region, including but not limited to or requiring all of the following: Beach pea (*Lathyrus japonicus*), seabeach orache (*Atriplex cristata*), seabeach sandwort (*Honckenya peploides*), seaside-flatsedge (*Cyperus filicinus*), seabeach saltwort (*Salsola kali*) and seaside goldenrod (*Solidago sempervirens*).

The northerly dune is managed to retain native coastal herbaceous vegetation including but not limited to American beachgrass, beach pea, and seaside goldenrod. Woody vegetation such as tree-of-heaven, staghorn sumac, black cherry and willow will self-colonize from vegetation along the nearby road edge and needs to be removed to reduce predator habitat and to promote native herbaceous species. Woody vegetation is cut off at ground level and removed for disposal off-site. Non-native herbaceous plants are

---

<sup>4</sup> Swain, P. C. 2020. Classification of the Natural Communities of Massachusetts. Massachusetts Division of Fisheries and Wildlife, Westborough, MA.

removed by hand weeding. Vegetation along the seawall during the nesting and fledging season is needed to reduce predator habitat and can be accomplished by cutting vegetation to reduce height (i.e., predator cover) and without disturbing roots so that the plants can continue to grow during the remainder of the growing season.

The southerly dune area is primarily vegetated by herbaceous species such as American beachgrass, beach pea, seaside goldenrod, sand dropseed, sea rocket and Russian thistle and supports greater plant density than the northerly dune area. Vegetation management in the southerly dune includes hand weeding to remove non-native and invasive species. Management to reduce aboveground density around the beachgrass is performed to maintain nesting habit in the southern portion of the beach. Vegetation management occurs outside of the nesting season.

**Table 3. Non-Native and Invasive Plants Observed on Yirrell Beach**

Latin Binomial	Common Name	Listed on IPANE <sup>(1)</sup>
<i>Acer platanoides</i>	Norway Maple	✓
<i>Acer pseudoplatanus</i>	Sycamore Maple	
<i>Ailanthus altissima</i>	Tree of Heaven	✓
<i>Celastrus orbiculatus</i>	Oriental Bittersweet	✓
<i>Centaurea stoebe</i>	Spotted Knapweed	✓
<i>Cirsium arvense</i>	Canada Thistle	✓
<i>Cyanichum louiseae</i>	Black Swallowwort	✓
<i>Eleagnus umbellata</i>	Autumn Olive	✓
<i>Fallopia japonica</i>	Japanese Knotweed	
<i>Lepidium latifolium</i>	Broad-leaved pepperweed	✓
<i>Phragmites australis</i>	Common Reed	✓
<i>Robinia pseudoacacia</i>	Black Locust	
<i>Rosa multiflora</i>	Multiflora Rose	✓
<i>Rumex acetosella</i>	Red Sorrel	✓
<i>Salix atrocinerea</i>	Gray Willow	
<i>Solanum dulcemara</i>	Bittersweet nightshade	✓

1. Invasive Plant List of New England (<https://www.invasive.org/weedcd/html/ipane.htm> accessed Aug. 20,2024)

The shorebird Monitor directs or conducts all vegetation management activities to ensure that desirable vegetation and birds are not adversely affected by these activities. Non-native and invasive plants will be removed by hand, woody plants may require cutting off at the ground level with hand saws. Cleared areas less than 25 square feet (“s.f.”) will be allowed to recolonize naturally from the adjacent plant stand. Cleared areas of 25 s.f or greater will be replanted with American beach grass culms, sourced from nursery stock. Plants will not be transplanted from other dune or beach areas.

**Planting:**

In 2016, with permission of the Winthrop Conservation Agent, a small number (approximately 40 plugs) of American beachgrass were relocated from elsewhere on the beach to a weedy area south of Wyman Street. Two years later, in 2018, a few plugs (approximately 10) were installed to help stabilize the beach in four dune areas fronting Pratt Street (north of Wyman Street). All of the beachgrass in the southerly portion of Yirrell Beach is from those two efforts. Many residents uprooted the transplanted *Ammophila*, thinking it "attracts birds" so that one area yielded limited success. Overall, the beachgrass planting was very successful, those limited plantings in 2016 and 2018 have spread to the vegetated dunes we observe today.

The planting north of Wyman went into highly managed beach, so there is relatively little invasive pressure. Those dunes collect sand and are growing much faster than the older dunes further south. The plugs installed south of Wyman Street were planted into gravel (no sand at the time) and the vegetation has trapped all the sand that one sees in that area. The northernmost two dunes south of Wyman Street also trap sand and expanded quickly. The hand weeding helped the American beachgrass expand. But without active management, the southernmost three dunes are languishing.

No planting is proposed presently. Any future planning of American beachgrass will be performed using nursery grown plant stock and with the approval of the Winthrop Conservation Commission.

**Pond Opening:**

A small coastal salt pond has started to form at the north end of the beach. In past years there have been concerns about water stagnation and requests for DPW to open it. One year, a private contractor was hired by residents to excavate an opening through the adjacent Coastal Beach to open the pond. Such activities might not necessarily come to the attention of the DPW, but the residents should have sought approval from the Conservation Commission and NHESP by filing a joint WPA and MESA NOI for approval to ensure compliance with the Regulations.,.

This was a one-time management activity, and the cut was naturally closed with no long-term effect to Salt Pond or Coastal Beach.

**3.2.3 Beach and Dune Functions**

As described above Coastal Beach is presumed significant to storm damage prevention, flood control, and wildlife habitat; while Coastal Dune is presumed significant to storm damage prevention, flood control and wildlife habitat (specifically bird nesting habitat [10.28(1)(f)]. The management activities described above are proposed to promote the interest of wildlife habitat, and more specifically to augment beach and dune characteristics to preserve and promote nesting of state-listed shorebirds on Yirrell Beach.

### 3.2.4 Compliance with Performance standards

#### Coastal Beach:

The performance standards for Coastal Beach significant storm damage prevention, flood control or wildlife habitat are presented in 310 CMR 10.27(3) – (6) and (7) which are presented below in italics typeface with the response to each presented in normal typeface.

- (3) Any project on a coastal beach, except any project permitted under 310 CMR 10.30(3)(a), shall not have an adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent or downdrift coastal beach.*

Large debris removal, vegetation management, and planting does not affect beach erosion, does not decrease beach volume, nor does it alter beach form.

- (4) Any groin, jetty, solid pier, or other such solid fill structure which will interfere with littoral drift, in addition to complying with 310 CMR 10.27(3), shall be constructed as follows:*

*(a) It shall be the minimum length and height demonstrated to be necessary to maintain beach form and volume. In evaluating necessity, coastal engineering, physical oceanographic and/or coastal geologic information shall be considered.*

*(b) Immediately after construction any groin shall be filled to entrapment capacity in height and length with sediment of grain size compatible with that of the adjacent beach.*

*(c) Jetties trapping littoral drift material shall contain a sand by-pass system to transfer sediments to the downdrift side of the inlet or shall be periodically redredged to provide beach nourishment to ensure that downdrift or adjacent beaches are not starved of sediments.*

Not applicable. Shorebird management does not involve constructing a coastal engineering structure.

- (5) Notwithstanding 310 CMR 10.27(3), beach nourishment with clean sediment of a grain size compatible with that on the existing beach may be permitted.*

Beach nourishment, in the form of constructing the sacrificial dune, will be completed with sand of compatible grain size.

- (7) Notwithstanding the provisions of 310 CMR 10.27(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites or rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.*

The shorebird management activities are proposed to augment the capacity of Yirrell Beach to support shorebird habitat and promote successful breeding of state-listed shorebirds on the beach. These activities were developed in consultation with NHESP to use acceptable practices that balance shorebird habitat and nesting along with storm damage prevention, flood control and public recreation on Yirrell Beach.

## Coastal Dune:

The performance standards for Coastal Dune presumed significant storm damage prevention, flood control or wildlife habitat are presented in 310 CMR 10.28(3) – (6) which are presented below in italics typeface with the response to each presented in normal typeface.

- (3) Any alteration of, or structure on, a coastal dune or within 100 feet of a coastal dune shall not have an adverse effect on the coastal dune by:*
- (a) affecting the ability of waves to remove sand from the dune;*
  - (b) disturbing the vegetative cover so as to destabilize the dune;*
  - (c) causing any modification of the dune form that would increase the potential for storm or flood damage;*
  - (d) interfering with the landward or lateral movement of the dune;*
  - (e) causing removal of sand from the dune artificially; or*
  - (f) interfering with mapped or otherwise identified bird nesting habitat.*

The shorebird management activities do not adversely affect: the ability of waves to remove sand from the dunes; dune form that would increase the potential for storm or flood damage; the landward or lateral movement of the dune; or remove sand from the dune artificially.

Vegetation management on dunes will be performed on the northern dune to maintain vegetation density and cover to promote shorebird nesting in historic nesting area. In the southern dune vegetation management will be performed to promote dune stability as well as bird nesting.

The shorebird management activities are performed to promote and augment the shorebird habitat features of Coastal Dune, and these have been developed in consultation with the NHESP staff.

- (4) Notwithstanding the provisions of 310 CMR 10.28(3), when a building already exists upon a coastal dune, a project accessory to the existing building may be permitted, provided that such work, using the best commercially available measures, minimizes the adverse effect on the coastal dune caused by the impacts listed in 310 CMR 10.28(3)(b) through (e). Such an accessory project may include, but is not limited to, a small shed or a small parking area for residences. It shall not include coastal engineering structures.*

Not applicable.

- (5): The following projects may be permitted, provided that they adhere to the provisions of 310 CMR 10.28(3):*
- (a) pedestrian walkways, designed to minimize the disturbance to the vegetative cover and traditional bird nesting habitat;*
  - (b) fencing and other devices designed to increase dune development; and*

*(c) plantings compatible with the natural vegetative cover.*

Planting and vegetation management is proposed to promote native dune plant species.

*(6) Notwithstanding the provisions of 310 CMR 10.28(3) through (5), no project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.37.*

The shorebird management activities are proposed to augment the capacity of Yirrell Beach to support shorebird habitat and promote successful breeding of state-listed shorebirds on the beach. These activities were developed in consultation with NHESP and use acceptable practices that balance shorebird habitat and nesting along with storm damage prevention, flood control and public recreation on Yirrell Beach.

### **3.3 Augment Storm Damage Prevention and Flood Control Functions**

As described in the document "A Guide to the Coastal Wetlands Regulations of the Massachusetts Wetlands Protection Act (G.L. 131, s. 40)" (DEQE, 1978) coastal dunes play an important role in storm damage prevention and flood control. Typically, the dunes closest to the coastal beach are the dunes that are more significant to storm damage prevention and flood control because they intercept flood waters and waves. Artificially constructed dunes likewise play a role in protecting inland properties from storm waves and flooding.

The characteristics of coastal dunes which are likely to be significant to storm damage prevention and flood control include:

- (1) the location of the dunes immediately landward of the beach;
- (2) the volume (height and width) and form of coastal dunes which provide a buffer to the wave run during storms and retards storm line retreat;
- (3) coastal dunes erode in response to wave action. The erosion of coastal dunes by waves, usually during storms, supplies sand to the adjacent coastal beach. This sand helps maintain, or increase, the volume of the coastal beach as it loses sand during storms to nearshore areas of the ocean; and
- (4) vegetation on the dune contributes to the growth and stability of coastal dunes by providing conditions to trap sand thus depositing it on the dune. In this way vegetation helps to maintain and promote the expansion of dunes.

The Town proposes to construct an approximately 1,285 foot long sacrificial dune in the supratidal zone, along the seawall, to intercept storm and floodwaters to improve the capacity of the Coastal Beach and Coastal Dune to support the interests of storm damage prevention and flood control. The sacrificial dune will be comprised of beach compatible sand obtained from off-site sources, a commercial sand pit. To determine the compatible grain size for dune construction, the Town will collect sand samples from 10

locations spaced evenly along the beach. The 10 samples will be mixed to make one composite sample for analysis at a certified soil testing laboratory. Based on the grain size analysis, sand of equal to slightly coarser grain size will be used to construct the sacrificial dune. The sacrificial dune template is designed to be 3-feet tall with a 5:1 (horizontal to vertical) slopes. The seaward face will slope down to intersect with the natural beach grade and on average will be approximately 15 feet wide. The top will be 5 feet wide with a back slope 5 feet wide to maintain an adequate reveal along the seawall. This template layout requires approximately 1.85 cubic yard per linear foot (“cy/lf”) corresponding to a total of approximately 2,380 cy of sand. See Sheet 2 attached for a typical cross-section.

After the template is constructed the sacrificial dune will be planted with American beachgrass. Culms will be nursery grown stock and planted 18-inches on center to foster development of a dense stand of beach grass in 1- to 2-growing seasons. At 18-inch on-center spacing (1 plug per 2.25 s.f.) the sacrificial dune will require approximately 14,280 plugs. Beach fencing (snow fencing) will be installed around the perimeter of the sacrificial dune and along the designated walkways across the dune to guide pedestrians across the dune to avoid damaging the plants. The fencing will be maintained for a 3-year grow in period to prevent pedestrian traffic through the planted dune. Maintenance will include hand weeding to remove non-native or non-coastal plant species from the sacrificial dune, if needed.

Five pedestrian access paths across the sacrificial dune in a southeasterly orientation are proposed and those are depicted on Sheet 2. Final locations will be determined with input from the neighborhood. Stairways will be installed at the seawall in each of these locations to access the dune surface and 5-foot wide Mobi Mats will be installed seasonally across the dune from the stairways to approximately mean high water. Snow fence will be installed to establish a 7- to 8-foot wide pathway across the dune in which the Mobi Mat will be installed. The final stair design (e.g., prefabricated or purpose-built stairs) will be determined prior to installation. The existing and established pedestrian and vehicle access point at Wyman Street will be retained. This access is through a vegetated reach of the dune therefore there is no proposal to change it current orientation as that would cause unnecessary vegetation disturbance. This access point is used by the Town to access the beach with equipment and vehicles for beach clean-up. To guide vehicles and promote future natural colonization of beach grass along the seaward edge of the dune, snow fencing or rope guides will be installed at the seaward limit of the current vegetation margin to direct equipment operators to the southeast in order to promote vegetative growth in that direction and establish a southeast oriented access way along the seaward edge of the dune at this location.

Sheet 2 depicts the approximate location of the sacrificial dune proposed along the beach generally between the wheelchair access ramp and Otis Street extension. Shirley Street is closest to the beach along this length of the beach, therefore the dune is proposed in this reach of the beach to augment storm damage prevention and flood control for Shirley Street.

### **3.3.1 Compliance with Performance standards**

The activities proposed to augment storm damage prevention and flood control function of Coastal Beach are proposed in the supratidal zone on Coastal Beach and thus do not require review and approval from MassDEP and the U.S. Army Corps of Engineers pursuant to Ch. 91, Section 401 of the Clean Water Act, and Section 404 of the Clean Water Act.

### **Coastal Beach:**

The performance standards for Coastal Beach significant storm damage prevention, flood control or wildlife habitat are presented in 310 CMR 10.27(3) – (6) and (7) which are presented below in italics typeface with the response to each presented in normal typeface.

- (3) Any project on a coastal beach, except any project permitted under 310 CMR 10.30(3)(a), shall not have an adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent or downdrift coastal beach.*

The activities to promote storm damage prevention and flood control functions will increase the volume of sand on the beach, and will maintain sand available in the littoral drift system so that it is available for the fronting and adjacent beaches.

- (4) Any groin, jetty, solid pier, or other such solid fill structure which will interfere with littoral drift, in addition to complying with 310 CMR 10.27(3), shall be constructed as follows:*

*(a) It shall be the minimum length and height demonstrated to be necessary to maintain beach form and volume. In evaluating necessity, coastal engineering, physical oceanographic and/or coastal geologic information shall be considered.*

*(b) Immediately after construction any groin shall be filled to entrapment capacity in height and length with sediment of grain size compatible with that of the adjacent beach.*

*(c) Jetties trapping littoral drift material shall contain a sand by-pass system to transfer sediments to the downdrift side of the inlet or shall be periodically redredged to provide beach nourishment to ensure that downdrift or adjacent beaches are not starved of sediments.*

Not applicable. Does not involve constructing a new coastal engineering structure.

- (5) Notwithstanding 310 CMR 10.27(3), beach nourishment with clean sediment of a grain size compatible with that on the existing beach may be permitted.*

Beach nourishment, in the form of constructing the sacrificial dune, will be completed with sand of compatible grain size as described above.

- (7) Notwithstanding the provisions of 310 CMR 10.27(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites or rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.*

Construction and presence of the vegetated sacrificial dune is not anticipated to have an adverse effect on shorebird habitat.

### **Coastal Dune:**

The performance standards for Coastal Dune presumed significant storm damage prevention, flood control or wildlife habitat are presented in 310 CMR 10.28(3) – (6) which are presented below in italics typeface with the response to each presented in normal typeface.

*(3) Any alteration of, or structure on, a coastal dune or within 100 feet of a coastal dune shall not have an adverse effect on the coastal dune by:*

*(a) affecting the ability of waves to remove sand from the dune;*

*(b) disturbing the vegetative cover so as to destabilize the dune;*

*(c) causing any modification of the dune form that would increase the potential for storm or flood damage;*

*(d) interfering with the landward or lateral movement of the dune;*

*(e) causing removal of sand from the dune artificially; or*

*(f) interfering with mapped or otherwise identified bird nesting habitat.*

Construction of the vegetated sacrificial dune is protective of the listed standards and will increase the volume of sand and extent of vegetation in the dune system.

*(4) Notwithstanding the provisions of 310 CMR 10.28(3), when a building already exists upon a coastal dune, a project accessory to the existing building may be permitted, provided that such work, using the best commercially available measures, minimizes the adverse effect on the coastal dune caused by the impacts listed in 310 CMR 10.28(3)(b) through (e). Such an accessory project may include, but is not limited to, a small shed or a small parking area for residences. It shall not include coastal engineering structures.*

Not applicable.

*(5): The following projects may be permitted, provided that they adhere to the provisions of 310 CMR 10.28(3):*

*(a) pedestrian walkways, designed to minimize the disturbance to the vegetative cover and traditional bird nesting habitat;*

*(b) fencing and other devices designed to increase dune development; and*

*(c) plantings compatible with the natural vegetative cover.*

The pedestrian pathways will be fitted seasonally with Mobi Mats which will not adversely affect habitat or vegetation. Snow fencing is proposed around the perimeter of the sacrificial dune and to identify the pedestrian path across the dune. The snow fencing will serve two purposes,, (1) to serve as barrier to prevent foot traffic out of the planted dune, and (2) to trap windblown sand to augment dune development. The proposed American beachgrass is compatible with the vegetative community on Yirrell Beach.

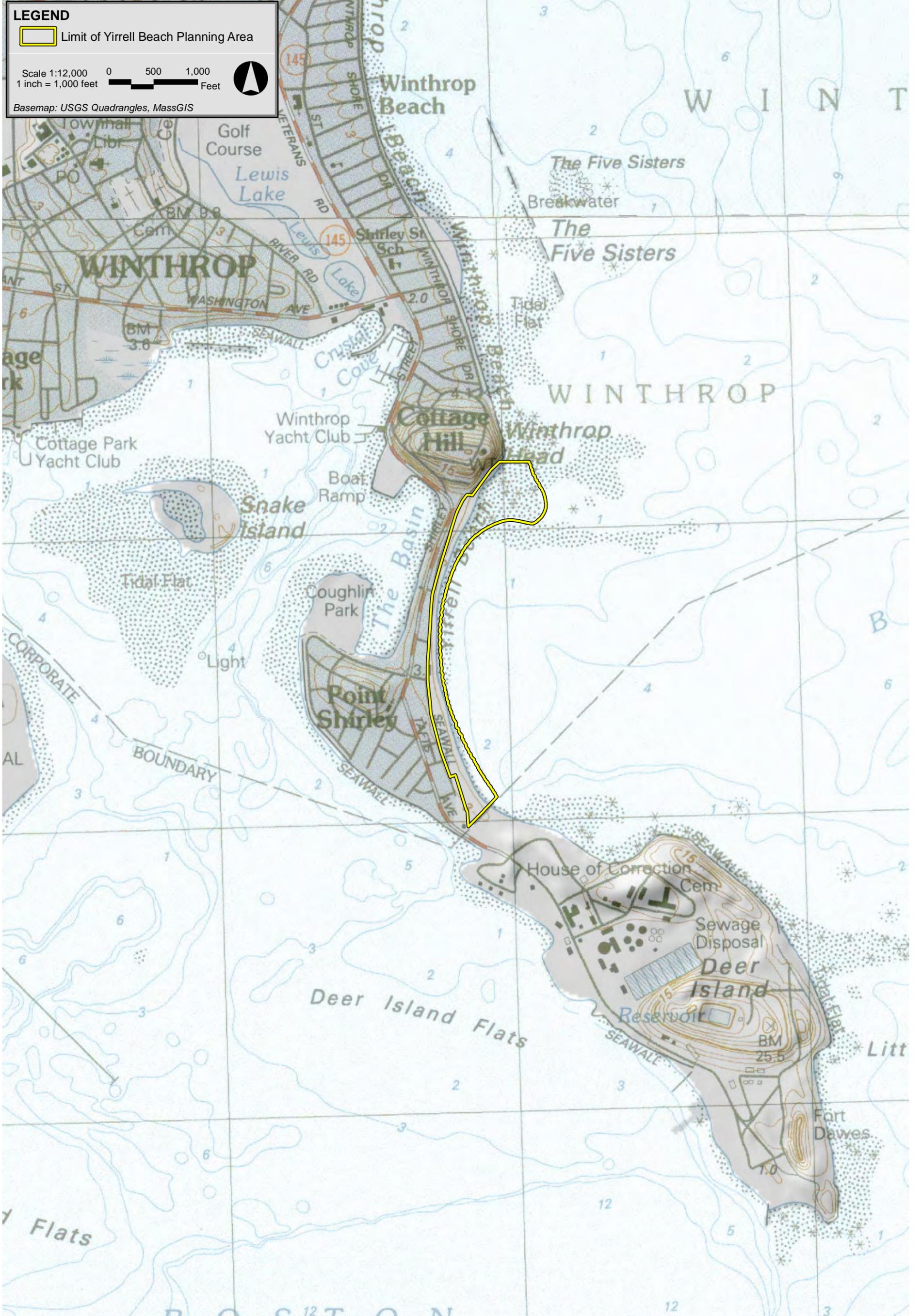
*(6) Notwithstanding the provisions of 310 CMR 10.28(3) through (5), no project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.37.*

Construction and presence of the vegetated sacrificial dune is not anticipated to have an adverse effect on shorebird habitat.

## Attachment A

---

Figures



Yirrell Beach Management Plan Winthrop, Massachusetts

**LEGEND**

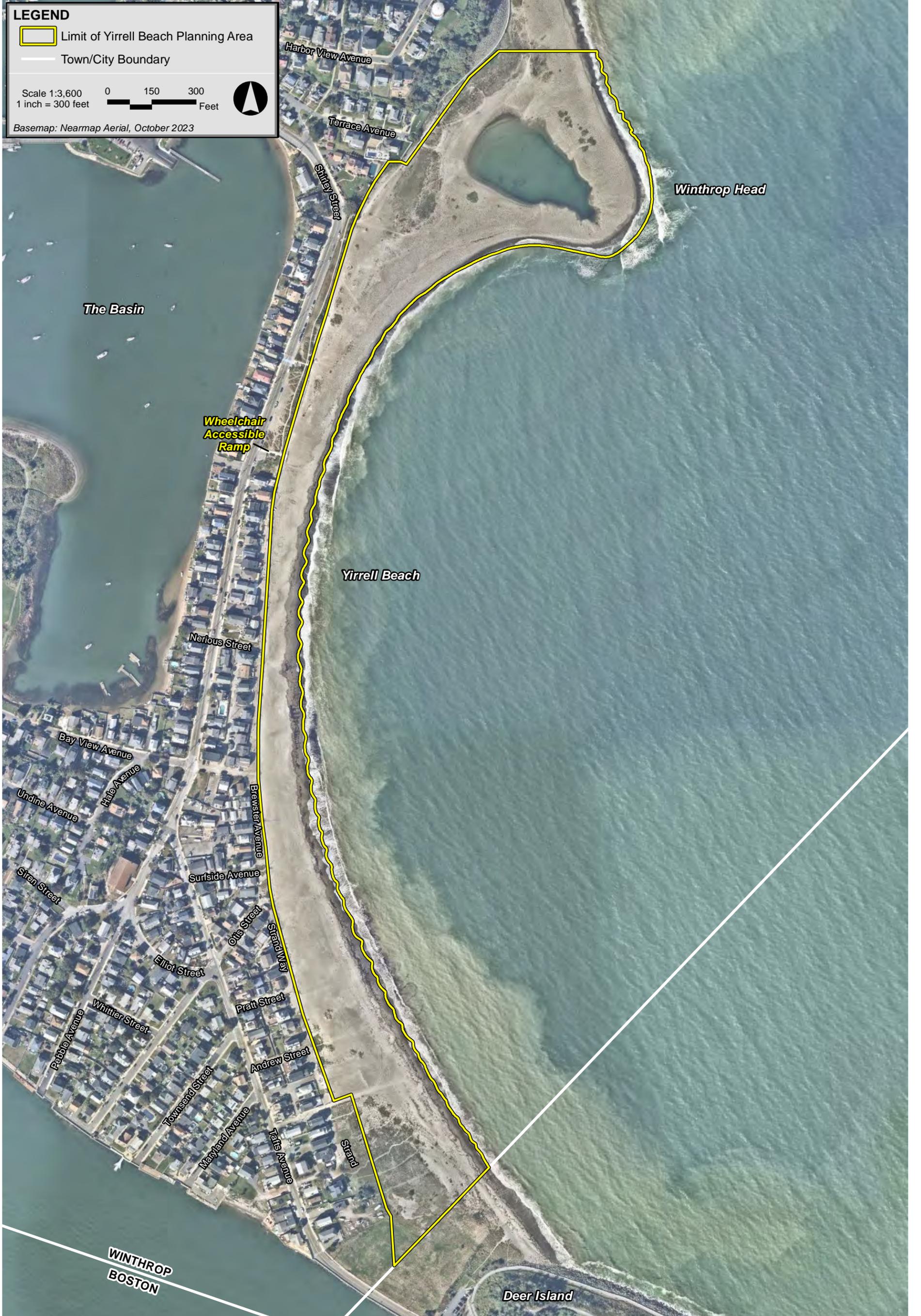
-  Limit of Yirrell Beach Planning Area
-  Town/City Boundary

Scale 1:3,600  
1 inch = 300 feet

0 150 300 Feet

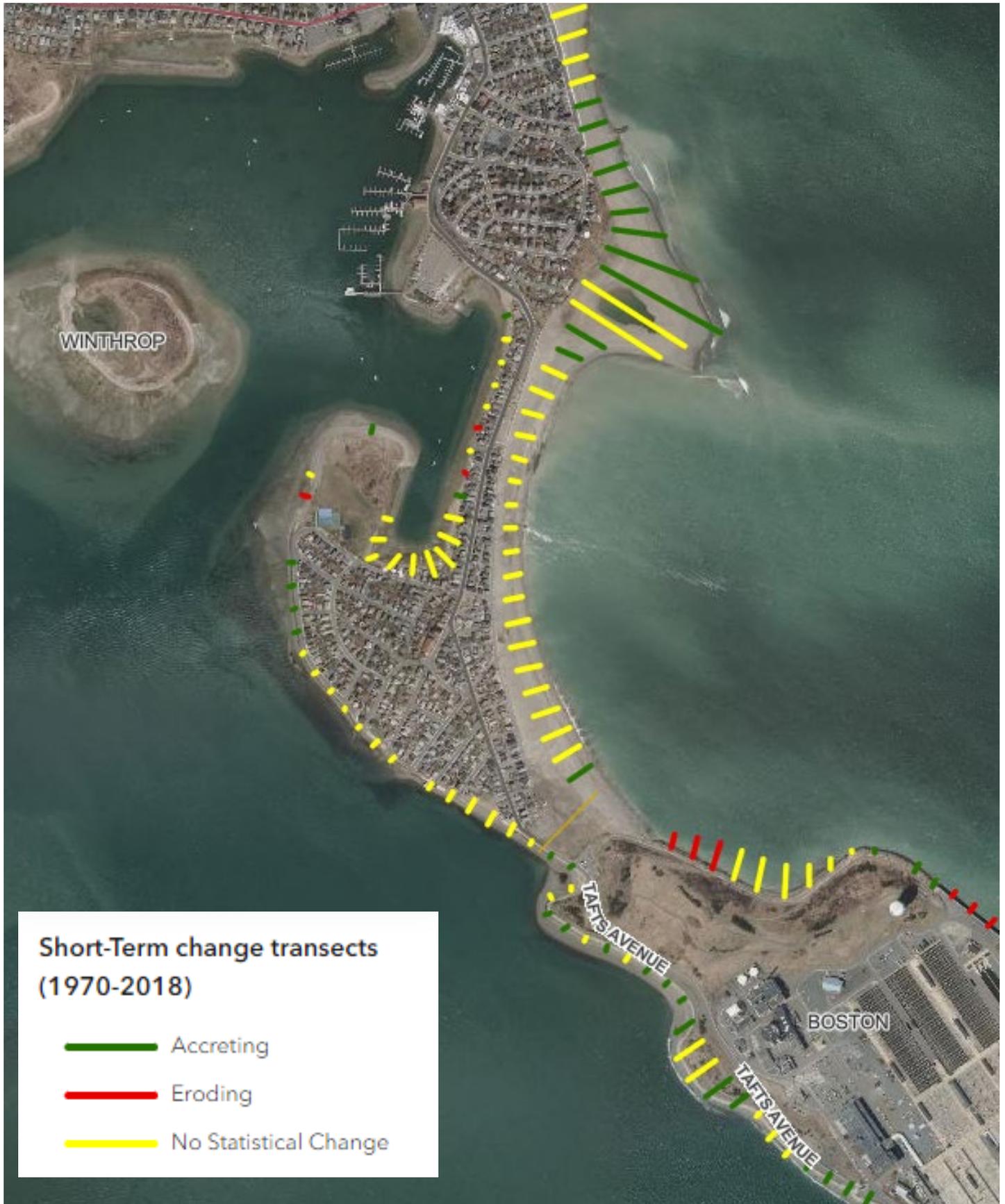


Basemap: Nearmap Aerial, October 2023



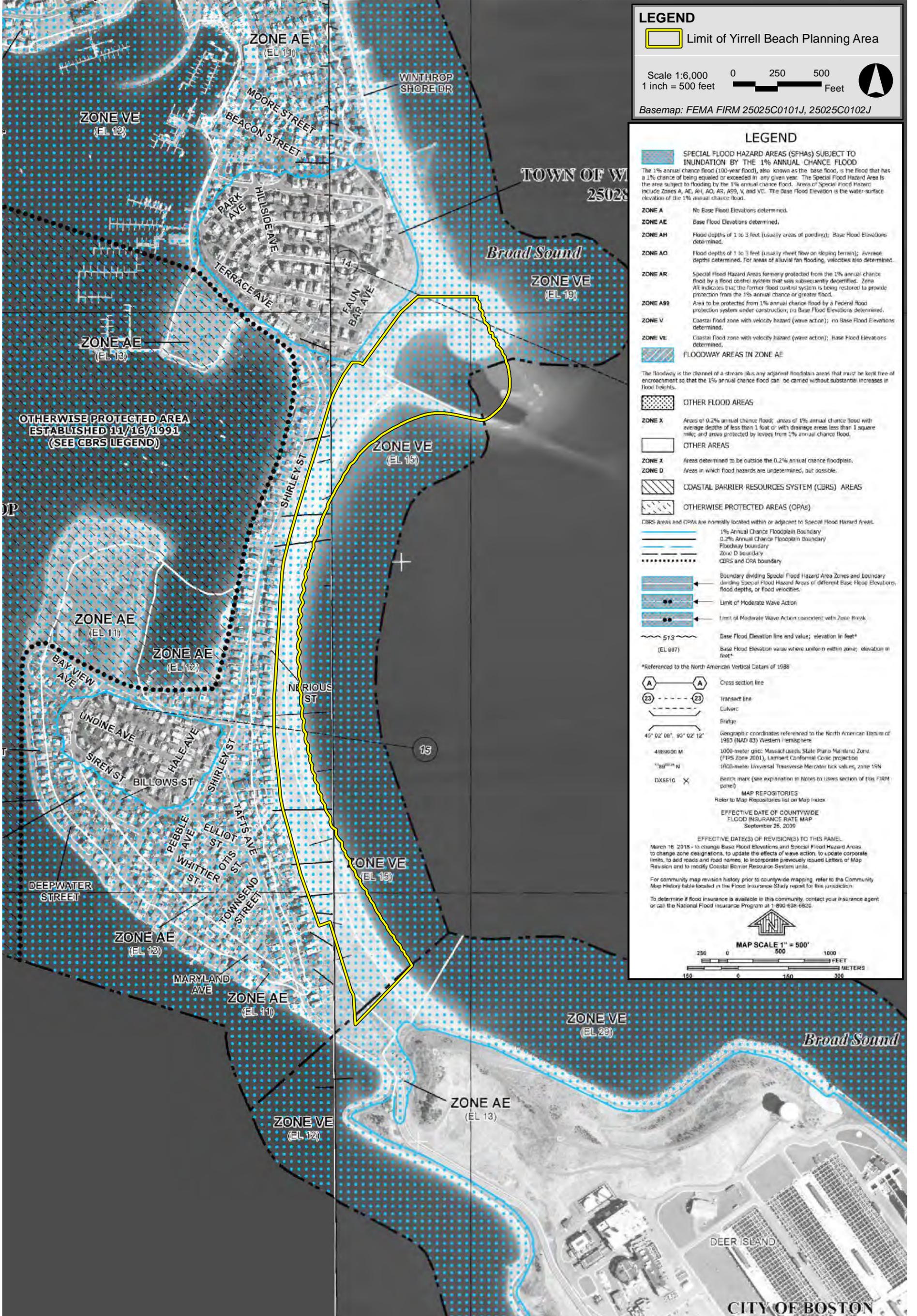
Yirrell Beach Management Plan Winthrop, Massachusetts







Yirrell Beach Management Plan Winthrop, Massachusetts



**LEGEND**

Limit of Yirrell Beach Planning Area

Scale 1:6,000  
1 inch = 500 feet

0 250 500 Feet

Basemap: FEMA FIRM 25025C0101J, 25025C0102J

**LEGEND**

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

**ZONE A** No Base Flood Elevations determined.

**ZONE AE** Base Flood Elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

**ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

**ZONE AR** Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently derelict. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

**ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

**ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

**ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream (plus any adjacent floodplain areas) that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

**ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

**ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.

**ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% Annual Chance Floodplain Boundary

0.2% Annual Chance Floodplain Boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.

Limit of Moderate Wave Action

Limit of Moderate Wave Action coincident with Zone Break

Base Flood Elevation line and value; elevation in feet\*  
(EL 997)

Base Flood Elevation value where uniform within zone; elevation in feet\*

\*Referenced to the North American Vertical Datum of 1988

Cross section line

Transact line

Culvert

Bridge

45° 02' 08", 93° 02' 12" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere

4969000 M 1000-meter gtic; Massachusetts State Plane Meters Zone (FIPS Zone 2001), Lambert Conformal Conic projection

1800-meter Universal Transverse Mercator back values, zone 19N

DX5510 X Bench mark (see explanation in Notes to Users section of this FIRM panel)

**MAP REPOSITORIES**  
Refer to Map Repositories list on Map Index

**EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP**  
September 25, 2009

**EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL**  
March 16, 2018 - to change Base Flood Elevations and Special Flood Hazard Areas to change zone designations, to update the effects of wave action, to update corporate limits, to add roads and road names, to incorporate previously issued Letters of Map Revision and to modify Coastal Barrier Resource System units.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

**MAP SCALE 1" = 500'**

250 0 500 1000 FEET

150 0 150 300 METERS

**LEGEND**

- Limit of Coastal Dune
- Mean High Water<sup>1</sup>
- Spring High Tide

**Elevation Contours (Feet, NADV88)**

- 5-ft Major
- 1-ft Minor

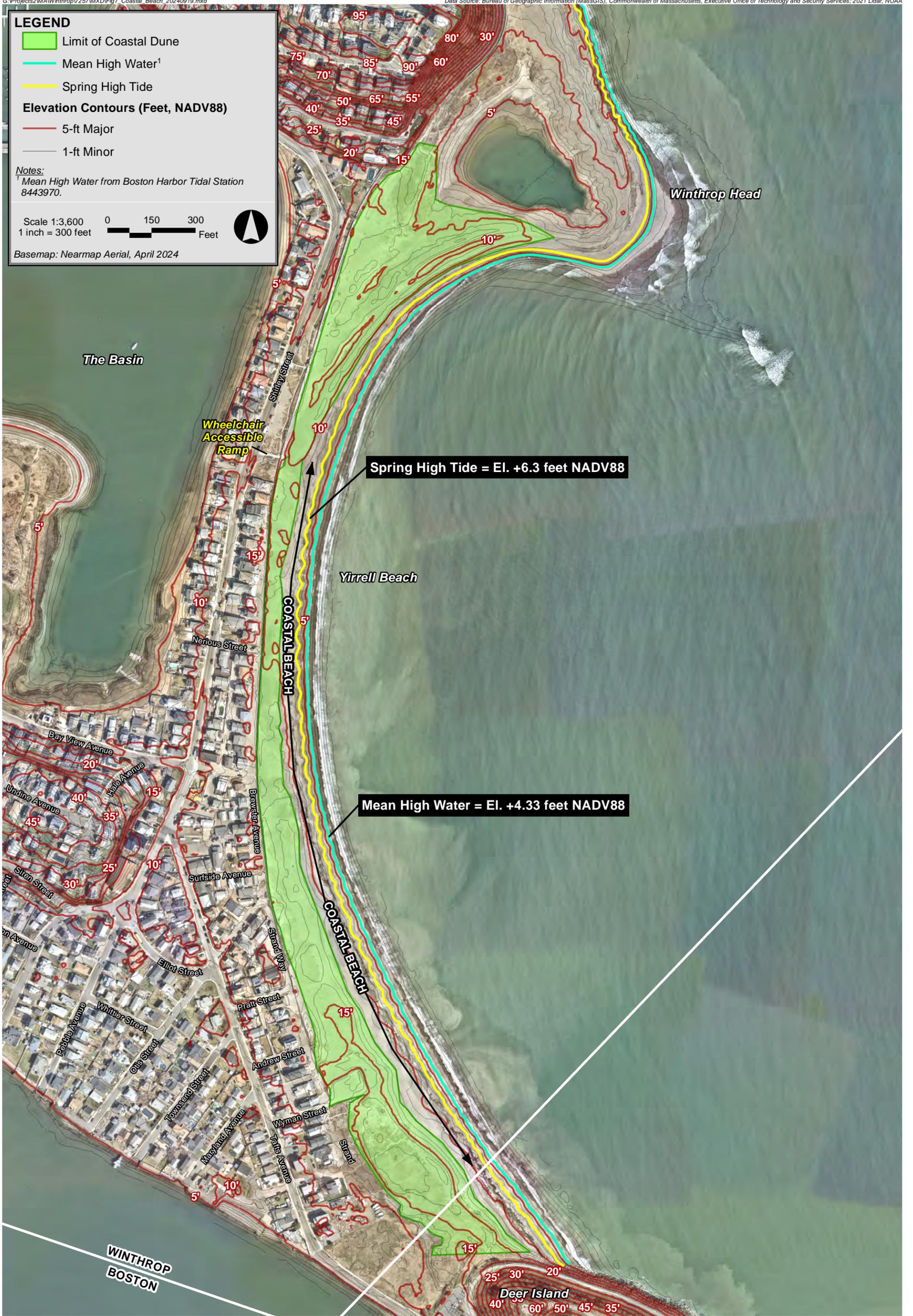
**Notes:**

<sup>1</sup> Mean High Water from Boston Harbor Tidal Station 8443970.

Scale 1:3,600  
1 inch = 300 feet



Basemap: Nearmap Aerial, April 2024





Yirrell Beach Management Plan Winthrop, Massachusetts

**LEGEND**

-  Area Raked Weekly (1.2 acres)<sup>1</sup>
-  Area Raked as Needed (1.4 acres)<sup>1</sup>
-  Limit of Coastal Dune
-  Mean High Water (El. +4.33 feet NAVD88)
-  Spring High Tide (El. +6.3 feet NAVD88)
- Elevation Contours (Feet, NADV88)**
-  5-ft Major
-  1-ft Minor

Notes:

<sup>1</sup> Typical raking limit is along the wrack line and does not extend into dune

Scale 1:1,680  
1 inch = 140 feet



Basemap: Nearmap Aerial, April 2024



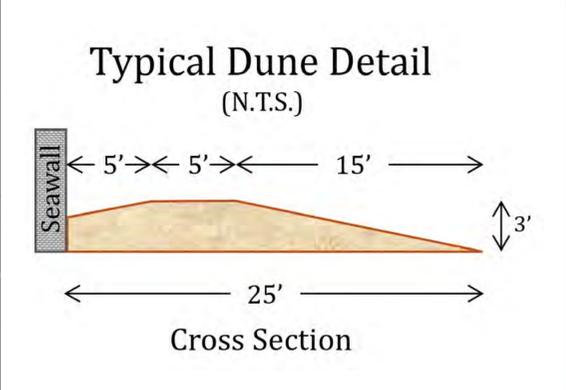
**LEGEND**

- Sacrificial Dune
  - Limit of Coastal Dune
  - Mean High Water (El. +4.33 feet NAVD88)
  - Spring High Tide (El. +6.3 feet NAVD88)
  - Pedestrian Access Point (5-ft Mobi Mat)
  - Vehicle/Pedestrian Access
- Elevation Contours (Feet, NADV88)**
- 5-ft Major
  - 1-ft Minor

Scale 1:1,680  
1 inch = 140 feet



Basemap: Nearmap Aerial, April 2024



**Attachment B**

---

---

NHESP Fact Sheets



**Natural Heritage  
& Endangered Species  
Program**

[www.mass.gov/nhesp](http://www.mass.gov/nhesp)

*Massachusetts Division of Fisheries & Wildlife*

**Piping Plover  
*Charadrius melodus***

State Status: **Threatened**  
Federal Status: **Threatened**

**GENERAL DESCRIPTION:** The Piping Plover is a small, stocky shorebird with pale brownish gray or sandy-colored plumage on its backside, with a white breast, forehead, cheeks, and throat, a black streak on the forecrown extending from eye to eye, and a black breastband which may not always form a complete circle. Its coloration gives it excellent camouflage in sandy areas. The average Piping Plover is 15 to 17 cm (6 to 7 in.) long, with a wingspan of 35 to 40 cm (14 to 16 in.). The tail is white at the base and tip, but dark in the middle. It has yellow-orange legs and its short bill is yellow-orange with a black tip in the summer, but turns completely black during the winter. In general, females have darker bills and lighter plumage than males. The Piping Plover runs in a pattern of brief starts and stops; in flight, it displays a pair of prominent white wing stripes. Its call is a series of piping whistles.

**SIMILAR SPECIES:** The Piping Plover is similar to the Semipalmated Plover (*Charadrius semipalmatus*) in size, shape, and coloration. However, the Semipalmated Plover is a darker brown in color, and has much more black on its head than the Piping Plover. The Semipalmated Plover does not breed in Massachusetts but is present on sandy beaches and intertidal flats from late July to early September during its southward migration.

**HABITAT:** Piping Plovers in Massachusetts nest on sandy coastal beaches and dunes, which are relatively flat and free of vegetation. Piping Plovers often build their nests in a narrow area of land between the high tide line and the foot of the coastal dunes; they also nest in Least Tern colonies. Nesting may also occur on vegetated dunes and in eroded areas behind dunes.



**RANGE:** During spring and summer, the Atlantic Coast population of Piping Plovers nests from the Newfoundland south to North Carolina. In winter they migrate farther south, from North Carolina to Florida, the Gulf of Mexico, and the Caribbean. Other populations of Piping Plovers nest along rivers on the Northern Great Plains and along the shores of the Great Lakes, migrating to the Gulf of Mexico in the winter.

**POPULATION STATUS IN MASSACHUSETTS:** The Atlantic Coast population of Piping Plovers is listed as Threatened at both the state and federal levels. In 2005, 475 breeding pairs nested at about 100 sites.

*A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan*

**Massachusetts Division of Fisheries & Wildlife**

1 Rabbit Hill Rd., Westborough, MA; tel: 508-389-6300; fax: 508-389-7890; [www.mass.gov/dfw](http://www.mass.gov/dfw)

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

[www.mass.gov/nhesp](http://www.mass.gov/nhesp)

Massachusetts has the largest breeding population of Piping Plovers along the Atlantic Coast.

**LIFE CYCLE / BEHAVIOR:** As soon as Piping Plovers return to their breeding grounds in Massachusetts in late March or April, the males begin to set up territories and attract mates. Territorial rivalry between males is very strong; adjacent male Piping Plovers mark off their territories by running side by side down to the waterline. Each bird takes turns, one running forward a few feet, then waiting for the other to do likewise. Nests are usually at least 200 feet apart; the nesting pair will confront any intruding Piping Plover which approaches the nest. Male Piping Plovers also defend feeding territories encompassing beach front adjacent to the nesting territory.

Courtship consists of a ritualized display by the male, who flies in ovals or figure-eights around a female, then displays on the ground by bowing his head, dropping his wings, and walking in circles around the female. The male also scrapes shallow depressions in the sand at potential nest sites. The female then chooses one of these nesting sites, usually in a flat, sandy area. The nest itself is a shallow depression which is often lined with shell fragments and small pebbles, which may aid in camouflaging the eggs. Female Piping Plovers typically lay four eggs per clutch, one egg every other day over a week's time. The eggs are sandy gray in color with dark brown or black spots, and all hatch within 4 to 8 hours of each other. Both parents take part in incubating the eggs until they hatch 26-28 days later.

The young chicks leave the nest within hours after hatching and may wander hundreds of meters before they become capable of flight. When threatened by predators or human intruders, the young run or lie motionless on the sand while their parents often pretend to have broken wings in an effort to attract the intruder's attention away from the chicks. Young Piping Plovers are brooded by their parents for 3 to 4 weeks and finally fledge 4 to 5 weeks after hatching, at which time they leave the nesting area.

Piping Plovers feed on marine worms, mollusks, insects, and crustaceans. They forage along the waterline, on mudflats at low tide, and in wrack (seaweed, marsh vegetations and other organic debris deposited by the tides) along the beach. Foraging behavior consists of running a short distance, then staring at the ground with the head tilted to one side, often standing on one foot while vibrating the other foot on the ground, and finally pecking at the food item it has detected in the sand.

Piping Plovers begin to migrate southward between late July and early September, although occasional stragglers remain behind until late October. Adult birds often return to the same nesting area every spring, although they usually change mates from year to year. Young birds may nest anywhere from a few hundred feet to many miles from where they were hatched.

*Updated 2015*

***A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan***

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

[www.mass.gov/nhesp](http://www.mass.gov/nhesp)



## Natural Heritage & Endangered Species Program

[www.mass.gov/nhesp](http://www.mass.gov/nhesp)

Massachusetts Division of Fisheries & Wildlife

## Least Tern *Sternula antillarum*

State Status: **Special Concern**  
Federal Status: **None**



Photo by B. Byrne, MDFW

Diminutive yet feisty, the Least Tern is a spring and summer colonial nester on Massachusetts' sandy beaches. For nesting, it favors sites with little or no vegetation. This preference coincides with humans' most desired spots for recreation and development, resulting in conflicts of use and loss of considerable Least Tern habitat in the past century. Currently, the Least Tern is considered a Species of Special Concern in Massachusetts, and continued management of nesting habitat and colonies is necessary to protect the state's population.

**DESCRIPTION:** The Least Tern measures 21-23 cm in length and weighs 40-62 g. In breeding plumage, the adult has a black cap and eyestripe, white forehead, pale gray upperparts, white underparts, a black-tipped, yellow-orange bill, and yellow-orange legs. Outside the breeding season, the crown and eyestripe become flecked with white, a dark bar forms on the wing, and the bill and legs darken. Hatchlings are tan or buff speckled black. Juveniles are brown and buff on the back; pale feather edgings give a scaly appearance. Underparts are white, the crown is buff speckled black, and the eyestripe and nape are blackish. The Least

Tern's voice is high and shrill. Its repertoire includes *zwreep* and *kit-kit-kit-kit* alarm calls, *k'ee-you-hud-dut* recognition call, and the male's *ki-dik* contact call.

### SIMILAR SPECIES IN MASSACHUSETTS:

Common (*Sterna hirundo*), Roseate (*Sterna dougallii*), and Arctic (*Sterna paradisaea*) Terns are all much larger, have entirely black foreheads and crowns in breeding plumage, have different colored bills and, proportionately, have much longer tails.

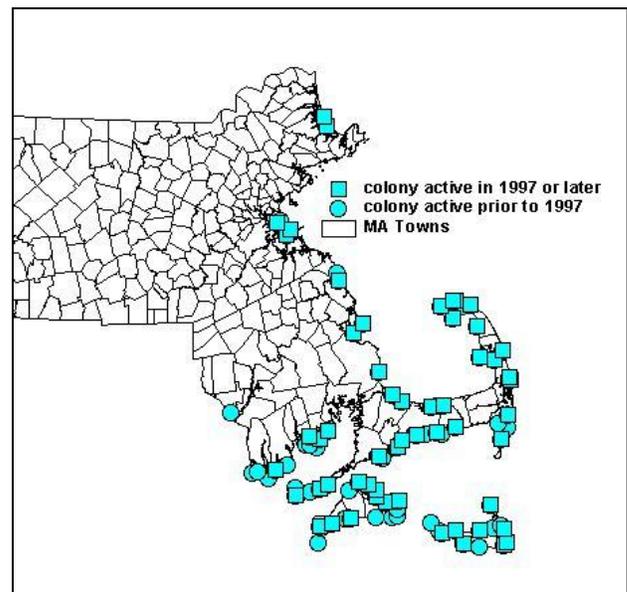


Figure 1. Distribution of present and historic Least Tern nesting colonies in Massachusetts.

**DISTRIBUTION AND MIGRATION:** The Least Tern breeds in North, Middle, and South America and the Caribbean. In North America, it breeds on the Atlantic coast from Maine to Florida, along the Gulf coast, on the Pacific coast from California to Mexico, and inland, principally along major tributaries of the Missouri, Ohio, and Mississippi rivers. Massachusetts birds arrive in

*A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan*

## Massachusetts Division of Fisheries & Wildlife

1 Rabbit Hill Rd., Westborough, MA; tel: 508-389-6300; fax: 508-389-7890; [www.mass.gov/dfw](http://www.mass.gov/dfw)

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

[www.mass.gov/nhesp](http://www.mass.gov/nhesp)

early-May to nest at coastal locations statewide (Figure 1). The largest populations occur on Cape Cod and the Islands (see Status below). The Least Tern leaves Massachusetts by early September (and in some years is gone by early August) to begin its journey to wintering quarters, which are mainly off the eastern coasts of Central and South America, south to northern Argentina.

**BREEDING AND FORAGING HABITAT:** In Massachusetts, the Least Tern nests on sandy or gravelly beaches periodically scoured by storm tides, resulting in sparse or no vegetation; it also takes advantage of dredge spoils. In other areas of the country, it nests on riverine sandbars, mudflats, and gravel roofs. Along coasts, the Least Tern forages in shallow-water habitats, including bays, lagoons, estuaries, river and creek mouths, tidal marshes, and ponds.

**FOOD HABITS:** The Least Tern primarily consumes small fish, but also takes crustaceans and insects. The most common prey items in Massachusetts are sand lance, herring, and hake. This tern hovers 1-10 m over water, then plunges to the surface to capture prey. Insects are captured on the wing and by skimming the water surface. It may forage singly or in small flocks of 5-20 birds. Foraging generally occurs close to the nesting site, and up to 3 km away from colonies in response to an abundance of prey.

**BREEDING:**

*Phenology.* Least Terns arrive in Massachusetts in early May. Colony formation and courtship quickly ensue. Egg laying commences a couple weeks later than that of Common and Roseate Terns: dates range from 20 May to 23 August. Incubation lasts about 3 weeks, as does the nestling period. The terns have mostly departed for winter locales by early September, and in some years by early August.

*Colony.* The Least Tern is gregarious and nests in colonies of just a few to > 2000 pairs, but colonies usually number < 25 pairs. Currently, the largest colony in Massachusetts numbers about 600 pairs, but in some years this number is much higher depending on the degree of dispersion of the birds. In Massachusetts, the Least Tern often nests in association with the Piping Plover (*Charadrius melodus*), with which it shares similar nesting habitat requirements, but only rarely forms mixed colonies with other tern species.

*Pair bond and parental care.* The Least Tern is monogamous. In a California study, about half the birds retained the same mate for more than one year. Courtship behavior includes aerial and ground displays. In the aerial display, a fish-carrying male is chased by 1 to 4 females; the display ends in a stiff-winged glide, during which participants cross each others' paths and bank towards each other repeatedly. Courtship on the ground includes parading and posturing. Males also feed females during courtship and throughout incubation. Incubating and chick-rearing duties are shared by both parents, but not equally: females typically do about 80% of the incubating, and more of the brooding/attending; males may do more feeding of chicks.

*Nest.* The nest, which is often just slightly above the high tide line, is a shallow scrape in the substrate to which vegetation, shell, or pebbles may be added. Considerable nest loss can be attributed to storms, given the low-lying nature of many nests. Mean inter-nest distance at a New Jersey colony was about 9 m by the end of incubation.

*Eggs.* Eggs are oval or sub-elliptical, and measure about 31 x 23 mm. Color and markings are very variable, but eggs generally have a beige or light olive-brown ground color with dark spots and splotches. Clutch size is 2 or (especially for interior Least Terns) 3, sometimes 1. Incubation, which is inconsistent until the clutch is complete, lasts about 21-23 days in Massachusetts.

*Young.* Chicks are semi-precocial. At hatching, they are downy and eyes are open. Parents brood chicks for the first 1-2 days, after which time chicks leave the nest and usually wander up to 200 m from nest site (up to 1 km in response to disturbance). Parents carry prey to chicks in their bills at a rate of about 2 fish/hour. While adults forage, chicks seek shelter in vegetation or near debris; older chicks may wait at the water's edge. Fledging occurs after about 3 weeks. Young disperse from the natal site within 3 weeks of fledging, and are still fed by parents for up to 8 weeks after fledging. Family units are thought to migrate together.

**PREDATION:**

*Predators.* A wide variety of birds and mammals, crabs, and fish are predators of Least Tern eggs, chicks, and adults. Avian predators include crows, gulls, Great Blue Heron, Black-crowned Night-Heron, Ruddy Turnstone, Sanderling, Great Horned Owl, Peregrine Falcon,

***A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan***

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

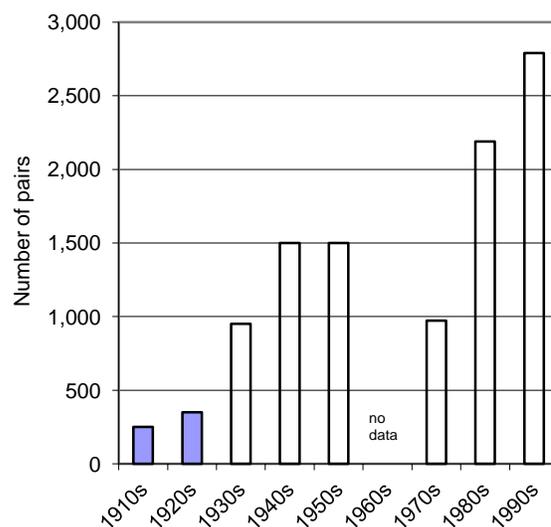
American Kestrel, and Northern Harrier, among others. Mammalian predators include fox, coyote, raccoon, skunk, opossum, feral hog, cat, dog, and rat.

*Responses to predators and intruders.* Within the colony, nesting is fairly synchronous as compared to that of Massachusetts' larger terns; this may be a strategy to reduce the amount of time the Least Tern colony is vulnerable to predation. Least Tern eggs and chicks are cryptically colored. Hatched eggshells are removed from the nest site (the white inner shell is obvious). When eggs and chicks are vulnerable (for instance, to most avian and human intruders), adults give alarm calls, dive, defecate on, and attack intruders. When adults are vulnerable (for instance, to canids), they desert the nest or fly high over the predator. Repeated intrusions by nocturnal predators, in particular, may cause the colony to desert the site. Shifts between different nesting sites within the breeding season in response to disturbance are common for this species. Terns become more defensive as the season progresses. Birds experienced with human intruders are more aggressive than inexperienced birds, and occasionally will even strike humans, earning the Least Tern the nickname, "little striker."

**LIFE HISTORY PARAMETERS:** Most Least Terns breed annually starting at 3 years, some at 2 years. One brood per season is raised, but Least Terns may renest up to 3 times if eggs or chicks are lost early enough in the season. Annual productivity, which is difficult to estimate because of the high mobility of chicks shortly after hatching, is very variable, but was estimated at about half a chick per pair at several locations in the country. There are no data from Massachusetts, but elsewhere survival from fledging to 2-3 years was estimated at about 80%, and annual survival of adults was estimated at over 85%. The oldest Least Tern on record was 24 years and 1 month old. It was banded in Massachusetts and recovered in New Jersey.

**STATUS:** The Least Tern suffered the same fate as Massachusetts' larger terns at the end of the 19<sup>th</sup> century – they were slaughtered for use as decorations for hats. By the early 20<sup>th</sup> century, only about 250 pairs of Least Terns remained in the state. Following legal protection, numbers increased to the 1,500 pair level by the 1950s, but declined again (perhaps as a result of increased recreational use of beaches) to perhaps 900 pairs by the early 1970s (Figure 2). More aggressive protection of breeding colonies since then has contributed to a fairly

steady increase in numbers. In 2001, 3,420 pairs nested in the state, a record high for the past 100 years. Currently nesting at 54 breeding sites, the Least Tern is Massachusetts' most widely distributed tern. The largest colonies in 2001 occurred at: Dunbar Point (Kalmus Park), Barnstable (599 pairs); Tuckernuck Island, Nantucket (432); Sylvia State Beach, Oak Bluffs (370); and Dead Neck-Sampsons Island, Barnstable (257). Favored breeding sites remain in flux, however, due to the species' sensitivity to disturbance, and because of its preference for nesting on unvegetated beaches. The Least Tern is a Species of Special Concern in Massachusetts.



**Figure 2. Least Tern population trends in Massachusetts, 1910s to 1990s (modified from Blodget and Melvin 1996).**

**CONSERVATION AND MANAGEMENT:** Since the 1970s, most sites have been fenced and posted with signs to discourage human intrusion into colonies. At many sites, Piping Plover and Least Tern management is integrated due to the species similar nesting habitat requirements and threats. Because of the Least Tern's propensity for nesting on mainland and barrier beaches (in contrast to offshore islands), disturbance of colonies by humans and predators remains a chronic problem. The principal conservation challenge confronting wildlife managers in protecting Least Terns is to maintain adequate separation between people on the beaches and the nesting colonies to enable the birds to successfully reproduce. Humans (and their dogs) in close proximity to colonies may keep adult birds off their nests, contributing to chick and egg mortality due to

### ***A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan***

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

temperature extremes; dogs also kill chicks. Off-road vehicles (ORV's) crush tern eggs and chicks and destroy habitat; ruts created by tires trap chicks, preventing normal movements and further exposing them to interactions with vehicles. Garbage left on the beaches by humans may attract predators to colonies and cause birds to shift to alternate breeding sites. Given the habitat that the Least Tern selects, intensive and ongoing management of colonies will always be necessary if this species is going to be adequately shielded from disturbance. Efforts to limit coastal development are also critical to protecting the viability of the state's population.

#### **REFERENCES:**

- Blodget, B.G., and S.M. Melvin. 1996. Massachusetts tern and piping plover handbook: a manual for stewards. Mass. Div. of Fisheries and Wildlife. Natural Heritage and Endangered Species Program. Westborough, MA.
- Thompson, B.C., J.A. Jackson, J. Burger, L.A. Hill, E.M. Kirsch, and J.L. Atwood. 1997. Least Tern (*Sterna antillarum*). In *The Birds of North America*, No. 290 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D. C.
- Veit, R.R., and W.R. Petersen. 1993. *Birds of Massachusetts*. Massachusetts Audubon Society. Lincoln, MA.

Updated 2015  
Prepared by C.S. Mostello, 2008

#### **A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan**

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

[www.mass.gov/nhesp](http://www.mass.gov/nhesp)

## Attachment C

---

---

NHESP Correspondence



DIVISION OF  
**FISHERIES & WILDLIFE**

1 Rabbit Hill Road, Westborough, MA 01581  
p: (508) 389-6300 | f: (508) 389-7890  
**MASS.GOV/MASSWILDLIFE**

March 9, 2022

Winthrop Conservation Commission  
1 Metcalf Square  
Winthrop MA 02152

Steven Calla, Director  
Town of Winthrop Department of Public Works  
100 Kennedy Drive  
Winthrop MA 02152

RE:      Applicant:                      Steven Calla, Director, Winthrop DPW  
         Project Location:                Yirrell Beach  
         Project Description:              Yirrell Beach Maintenance and Management Plan  
         DEP Wetlands File No.:        082-0522  
         NHESP File No.:                  20-39820

Dear Commissioners & Applicant:

On February 7, 2022, the Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") received a Notice of Intent and accompanying Yirrell Beach Management Plan in compliance with the rare wildlife species section of the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.37). The Division also received the MESA Review Checklist and supporting documentation for review pursuant to the MA Endangered Species Act Regulations (321 CMR 10.18).

Yirrell Beach provides important nesting, foraging and staging habitat for coastal bird species. Activities detailed within the Yirrell Beach Management Plan will occur within actual habitat of Piping Plover (*Charadrius melodus*) and Least Tern (*Sternula antillarum*) species state-listed as Threatened and Special Concern, respectively. These species and their habitats are protected pursuant to the WPA and the MESA. Fact sheets for state-listed species can be found at [www.mass.gov/nhesp](http://www.mass.gov/nhesp). The Piping Plover is also federally protected as Threatened pursuant to the U.S. Endangered Species Act (ESA, 50 CFR 17.11).

The purpose of the Division's review of the proposed project under the WPA regulations is to determine whether the project will have any adverse effects on the Resource Areas Habitats of state-listed species. The purpose of the Division's review under the MESA regulations is to determine whether a Take of state-listed species will result from the proposed project.

**WETLANDS PROTECTION ACT (WPA) & MASSACHUSETTS ENDANGERED SPECIES ACT (MESA)**

Based on the information provided and the information contained in our database, it is the opinion of the Division that the activities proposed within Yirrell Beach Management Plan (YBMP), as currently proposed, must be conditioned in order to avoid adverse effects to the Resource Area Habitats of state-listed wildlife species (310 CMR 10.37) and must be conditioned in order to avoid a prohibited Take of state-listed species (321 CMR 10.18(2)(a)). The YBMP outlines measures to protect state-listed

shorebirds and their habitats; in addition to the measures outlined therein, the following conditions must be met to protect state-listed species and their habitats:

1. **State-listed Species Monitoring & Habitat Protection:** On or before April 1 each year, all areas of Piping Plover nesting habitat shall be delineated with symbolic fencing and warning signs. On or before May 15 each year, all areas of Least Tern nesting habitat shall be delineated with symbolic fencing and warning signs. These areas shall remain fenced as long as viable eggs, unfledged chicks, or territorial or courting Piping Plovers are present. State-listed species monitoring must be sufficient to detect nesting pairs, document nesting dates, detect problems monitor chicks, etc. as detailed and described in the YBMP. All fenced areas shall be managed in accordance with the Massachusetts Division of Fisheries and Wildlife document of April 1993 titled *Guidelines For Managing Recreational Use Of Beaches To Protect Piping Plovers, Terns, And Their Habitats In Massachusetts ("Guidelines")*.
2. **Beach Raking & Back-dragging:** To protect state-listed species, all raking and back-dragging during April or May can only occur if a qualified monitor, as determined by the Division, first has determined the locations of all territorial birds and those territories have been fenced and are excluded from raking so as not to deter pre-nesting birds. If state-listed nesting birds are present during April 1 – August 31, then raking should occur as detailed in the YBMP in accordance with the Guidelines.
  - a. For the benefit of beach-nesting birds, from April 1 through August 31, mechanical beach cleaning that reduces the amount of wrack (seaweed and other organic debris) at the tide line should be minimized in the vicinity ( $\pm 200$  yd) of symbolically fenced areas. If wrack is present in typical volumes and does not contain much human trash or present a health risk, it should be left in place. Trash within the wrack line should be removed by hand whenever feasible, leaving in place the majority of the wrack. If copious amounts of wrack present a health risk or are a public nuisance that necessitates removal, leave in place at least one-third of the fresh wrack from a normal tidal cycle to provide foraging and sheltering opportunities for shorebirds.
  - b. When unfledged chicks are present on the beach, beach raking and backdragging should only be conducted when a qualified shorebird monitor is present to determine locations of unfledged chicks and ensure that raking equipment remains at least 200 yards away from unfledged chicks.
3. **Equipment and Motorized Vehicles:** Any equipment and motorized vehicles on the beach during April 1 – August 31 must adhere to the protection measures detailed in the YBMP and comply with the Guidelines.
  - a. When unfledged chicks are present on the beach, any routine patrols (non-emergency situations) and use of utility vehicles or heavy equipment (e.g., debris removal, or distribution of lifeguard stations, ADA mats, etc.), should only be conducted when a qualified shorebird monitor is present to determine locations of unfledged chicks and ensure that motorized equipment remains at least 200 yards away from unfledged chicks.
  - b. If unauthorized vehicles access and traverse the coastal beach during the shorebird nesting season, the DPW should further consult with the Division to determine appropriate measures to reduce unauthorized motorized access (e.g., signage, temporary or seasonal barriers, etc.).

- c. Any deep ruts have been created that could reasonably be expected to impede chick movements must be smoothed/repared
4. **Winter Storm Berm/Beach Grading:** The relocation of beach and dune sand to create and the winter berm shall not occur during the shorebird nesting season, April 1 – August 31. The winter storm berm must be dismantled and graded to match the surrounding, natural beach and dune slopes **before April 1**.
5. **Special/Scheduled Events:** During April 1 – August 31 all special events must comply with the Guidelines and may require additional staff including a qualified shorebird monitor to protect and monitor state-listed species during the event.
6. **Trash & Debris Removal:** During April 1 – August 31, trash should be removed frequently to avoid attracting predators as detailed in the YBMP. Hand removal of debris within areas delineated with symbolic fencing must be conducted by or under the oversight of a qualified shorebird monitor, as determined by the Division. For mechanical removal of trash or debris see condition 3a.
8. **Planting and Pond Opening:** During the shorebird nesting season, April 1 – August 31, these activities must be conducted under the guidance of a qualified shorebird monitor, as determined by the Division. Any use of equipment shall comply with above noted conditions.
9. **Amendments/Notice.** Upon filing for renewal, extension, or amendment of the Orders of Conditions, the applicant shall contact the Division for written response regarding impacts to Resource Area habitat of state-listed wildlife.
10. **Authorization Duration.** This authorization is valid for 5 years from the date of issuance. Work may be completed at any time during this 5-year period in compliance with the conditions herein. Thereafter, the applicant shall re-file under the MESA.

Provided these conditions are included in any approving Orders of Conditions issued by the Conservation Commission, and the applicant complies with all the above noted conditions, the project will not result in an adverse impact to the resource area habitats of state-listed wildlife species pursuant to the WPA and will not result in a prohibited Take pursuant to the MESA. A copy of the final Order of Conditions shall be sent to the NHESP simultaneously with the applicant as stated in the Procedures section of the WPA (310 CMR 10.05(6)(e)).

We note that all work is subject to the anti-segmentation provisions (321 CMR 10.16) of the MESA. This determination is a final decision of the Division of Fisheries and Wildlife pursuant to 321 CMR 10.18. Any changes to the proposed project or any additional work beyond that shown on the site plans may require an additional filing with the Division pursuant to the MESA. This determination is valid for five years. This project may be subject to further review if no physical work is commenced within five years from the date of issuance, or if there is a change to the project.

Please note that this determination addresses only the matter of state-listed species and their habitats. If you have any questions regarding this letter please contact Amy Hoenig, Endangered Species Review Biologist, at (508) 389-6364.

Sincerely,

A handwritten signature in black ink, reading "Everose Schlüter". The signature is written in a cursive style with a large, looped initial 'E'.

Everose Schlüter, Ph.D.  
Assistant Director

cc: MA DEP Northeast Region